Eviction Policy and Household Formation*

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Abstract

This paper studies how eviction policy affects rental housing availability, household formation, and welfare across the income distribution. We develop a model of a competitive rental market, in which tenants cannot commit to paying rent. Stricter eviction policies expand the set of rental housing landlords are willing to offer. This facilitates household formation by enabling more individuals to rent unless the policy is already too strict. The household formation response is concentrated among individuals with intermediate incomes. Greater rental housing availability, however, need not imply higher welfare: stricter policies can make renters worse off even when they rent larger homes. Income heterogeneity is key for welfare assessment of eviction policy. Richer renters choose larger homes, which increases the loss from eviction and strengthens their incentives to pay. As a result, they prefer laxer eviction policies. To examine whether the model's predictions are consistent with the data, we construct a novel eviction policy index for U.S. jurisdictions. We find that stricter policies are associated with less cohabitation with parents and greater household formation among young adults, and that both relationships are strongest among individuals with intermediate incomes, consistent with the model's predictions.

Keywords: Evictions, Eviction Policy, Rental Housing, Household Formation

JEL Codes: D14, D86, G51, R21, R31

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1 Introduction

Eviction is one of the most traumatic economic shocks individuals can experience, with lasting adverse effects that extend beyond the residential and financial spheres to physical and mental health, parenting, and other aspects of life.[1] Yet designing policy around eviction prevention is far from straightforward.[2] Protecting unlucky tenants from eviction must be balanced against providing sufficient incentives for them to pay rent; otherwise, landlords would be unwilling to supply rental housing.[3]

In this paper, we develop a parsimonious model of the rental market that provides a sharp theoretical characterization of how eviction policy affects the rental housing availability, rental market outcomes, and welfare across the income distribution. Stricter eviction policies expand the set of housing landlords are willing to offer. This in turn increases rental participation (unless the policy is too strict and/or the utility costs from nonpayment and eviction are not too high). Yet, stricter eviction policies can be harmful for inframarginal renters, even to those who choose to rent larger housing units. Thus, we highlight that measuring the success of a policy by its effect on rental outcomes can be misleading. Moreover, household heterogeneity is central to policy design and welfare assessment. To assess the model's empirical implications, we construct a novel index measuring the strictness of eviction policy across U.S. jurisdictions. The model's predictions for the effects of eviction policy on household formation are consistent with cross-sectional data.

Our simple one-period model has the following main ingredients. Individuals cannot commit to paying rent and failure to pay leads to eviction with some probability, forcing the individual to their outside housing option (which can be interpreted as homelessness or living with friends or relatives). This outside option is also available as a free alternative to renting. Individuals differ in productivity, observed at the time of contracting, which determines stochastic income realized after the rental contract is signed. Landlords are risk neutral, competitive, and operate a linear technology for providing rental housing. The rental market is segmented, with prices depending on both housing size and the prospective renter's productivity. In equilibrium, rental prices incorporate the risk of nonpayment.

We solve the model analytically under two specifications of individual preferences over consumption and housing: quasi-linear in consumption and Cobb–Douglas.[4] The quasi-

[1] See Desmond and Kimbro (2015) and Collinson, Humphries, Mader, Reed, Tannenbaum, and van Dijk (2024) among others.

[2] See, e.g., Abramson (2026), Abramson and Van Nieuwerburgh (2025) and Imrohoroglu and Zhao (2022).

[3] A similar trade-off between partial insurance and commitment was highlighted by Zame (1993) for credit markets and quantified by Chatterjee, Corbae, Nakajima, and Ríos-Rull (2007) and Livshits, MacGee, and Tertilt (2007) for the institution of personal bankruptcy.

[4] We verified numerically that our results extend to more general preferences. The results are available from the authors upon request.

linear specification yields a tractable framework that isolates the main mechanism in a transparent way. The analysis of the Cobb-Douglas case is more convoluted but delivers additional results on heterogeneity in the welfare effects of eviction policy.

Under quasi-linear utility, rent payment is determined by both an individual's willingness and ability to pay. For any rental contract, willingness to pay depends on the strictness of eviction policy but not on income, while the opposite is true for ability to pay. This dichotomy makes the theoretical analysis tractable.

We characterize the set of rental housing that landlords are willing to offer, the individual's rental choice, and welfare. The set of available houses is larger under a stricter eviction policy, modeled as a higher probability of eviction conditional on nonpayment. We also establish sufficient conditions for individuals to prefer renting to their outside option whenever a rental unit is offered. Together, these results yield our main testable implication: household formation—defined as the set of individuals who rent rather than take the outside option—is larger under a stricter eviction policy (as long as the probability of eviction conditional on nonpayment and/or utility costs from nonpayment and eviction are not too high). Moreover, we show that the household formation response is concentrated among individuals with intermediate income levels, as the poorest individuals are excluded from the rental market regardless of the eviction policy and richer tenants are already included. The model's predictions on household formation illustrate how eviction policy affects availability of affordable housing.

Although stricter eviction policy leads to more affordable housing, it need not increase renters' welfare. We show that the individual's rental choice and welfare are single-peaked in the strictness of eviction policy. Stricter eviction policy presents a tradeoff between stronger commitment and weaker insurance by forcing delinquent tenants out of their homes with higher probability. For lax policies, the commitment effect dominates as an individual benefits from expanded rental opportunities. For harsh eviction policies, the insurance effect dominates as the greater housing losses hurt the individual. Interestingly, stricter eviction policies can be harmful even to those who choose to rent larger housing units: for them, the benefits of larger housing are more than offset by the greater losses in the event of rental nonpayment. Thus, we highlight that judging the success of a policy by its effect on rental outcomes can be misleading.

Turning to heterogeneity, under quasi-linear preferences there is no income effect for the housing consumption, which limits the effects of income heterogeneity in the model. In a more realistic model with Cobb-Douglas preferences, the income effect affects the trade-off between commitment and insurance. Richer individuals choose larger houses, which increases the cost of losing the house and strengthens their incentives to pay. Consequently,

a stricter eviction policy is both more costly and less valuable for them. Intuitively, higher productivity and stricter eviction policy act as substitutes in generating commitment. As a result, richer individuals prefer laxer eviction policies than poorer individuals. This suggests that household heterogeneity is central to policy design and welfare assessment.

To examine whether our model's predictions are consistent with the data, we propose a novel measure of eviction policy across U.S. states and counties. We construct the "Eviction Policy Index" (EPI) as the fraction of eviction filings that result in eviction judgments—that is, the fraction of filings reaching the final stage of the judicial process. We verify that the index is economically sensible as it is negatively associated with rental delinquencies after controlling for other determinants. We then examine the relationship between the EPI and household formation. We find that the EPI is negatively correlated with living with parents and positively correlated with being a household head among young individuals. Both relationships are strongest among individuals with intermediate income levels, consistent with the model's predictions.

The rest of the paper is organized as follows. The next subsection reviews the related literature. Section 2 presents the theoretical model and derives analytical results and testable implications. Section 3 describes the data, the construction and validation of the eviction policy index, and the empirical analysis of the model's predictions. Section 4 concludes. Proofs and additional figures and tables are provided in the Appendix.

1.1 Related Literature

Since mortgage performance—particularly missed mortgage payments—was central to the Great Financial Crisis, a large body of research has examined mortgages and foreclosures. By contrast, evictions have received far less attention. Although sociologists have long studied evictions, with the seminal work of Desmond, 2017 as a prime example, the economics literature on the topic remains nascent.[5] Relatedly, there is limited research on rental nonpayment and its determinants and consequences.[6]

The economics literature on evictions falls broadly into two categories. The first consists of quantitative theory papers calibrated to aggregate data (e.g., Imrohoroglu and Zhao, 2022 and Corbae, Glover, and Nattinger, 2024) or micro-level data (e.g., Abramson, 2026 and Abramson and Van Nieuwerburgh, 2025). The second comprises empirical studies that use bespoke datasets from specific rental markets (e.g., Humphries, Nelson, Nguen,

[5]See Ahmad and Livshits (2024) for a detailed discussion of the state of the eviction literature.

[6]Two notable exceptions are Pattison (2024), who uses the Survey of Income and Program Participation (SIPP) to document patterns of missed rental payments, and Humphries, Nelson, Nguen, van Dijk, and Waldinger (2024), who do so using a proprietary dataset on low-income rental properties in the Midwest.

van Dijk, and Waldinger, 2024, Collinson, Humphries, Kestelman, Neslon, van Dijk, and Waldinger, 2024, and Ellen, O'Regan, House, and Brenner, 2021). Relative to this literature, our contribution is threefold. First, we develop a parsimonious model with sharp analytical predictions. Second, we construct a novel measure of eviction policy across U.S. jurisdictions, enabling us to examine whether the model's predictions are consistent with cross-sectional data. Third, we focus on how eviction policies affect household formation.

Among the quantitative studies, two that are especially relevant to our work are Corbae, Glover, and Nattinger (2024) and Abramson (2026). Corbae, Glover, and Nattinger develop a dynamic model with search frictions and study landlords' eviction decisions—a margin we abstract from entirely. In our setting, eviction conditional on nonpayment is exogenous. Instead, we focus on landlords' decisions over which housing units to offer and at what prices, taking into account tenants' endogenous payment choices. Abramson calibrates a dynamic model of evictions using data from San Diego County and, consistent with our findings, shows that policies that make eviction more difficult can harm renters by increasing equilibrium rents and homelessness.

Importantly, whereas in Corbae, Glover, and Nattinger (2024) rental nonpayment is effectively exogenous and triggered solely by unemployment events, in our model—with a continuous distribution of income shocks—the probability of nonpayment is endogenous and depends on the rent level. This creates a fixed-point problem in equilibrium pricing: the rent affects nonpayment risk, while nonpayment risk in turn determines the rent landlords must charge to break even. As a result, a central contribution of our paper is to characterize analytically a tractable equilibrium in which nonpayment risk is endogenous to the rental price itself and to show how this endogeneity shapes rental housing availability.[7]

A recurring finding in the empirical eviction literature is that tenant-protection policies can backfire by reducing the affordability or availability of rental housing, a mechanism that is central to our paper.[8] On the theoretical side, we formalize this mechanism through a sharp analytical characterization of equilibrium outcomes. On the empirical side, rather than focusing on a specific policy intervention—such as the right-to-counsel programs studied by Ellen, O'Regan, House, and Brenner (2021), Abramson (2026), and

[7] Abramson (2026) also faces this pricing fixed point. In his model, however, tenants must make the first rent payment before default becomes possible, so landlords receive one payment with certainty. Because this guaranteed payment increases with the rent, a sufficiently high rent eventually makes the lease profitable despite the risk of future default, ensuring that a break-even rent exists. In our one-period model, the only rent payment is exposed to nonpayment risk, so a break-even rent may not exist.

[8] Fetzer, Sen, and Souza (2023) further illustrate the importance of evictions and their consequences in assessing housing-related policies. They find that nearly 40% of the direct savings from a cut to housing benefit in the UK in 2011 were offset by increased local-government spending on homelessness due to the increase in evictions.

Collinson, Humphries, Kestelman, Neslon, van Dijk, and Waldinger (2024), or eviction moratoria studied by Arefeva, Jowers, Hu, and Timmins (2024)—we use cross-sectional variation in eviction policy across U.S. jurisdictions to examine the relationship between eviction policy and household formation.

Another strand of the housing literature that examines unintended consequences of policy interventions focuses on rent control.[9] To our knowledge, only two papers study the interaction between rent control and eviction policies. Geddes and Holz (2025) and Gardner and Asquith (2025) both examine the case of San Francisco and find that the introduction of rent control significantly increased eviction filings by strengthening landlords' incentives to evict.

Lastly, there is a large literature on household formation that studies young adults' decisions of whether to remain with their parents or move out.[10] Our contribution to this literature is to examine how the decision to form a household is shaped by eviction policy. Notably, this decision is affected both directly—through the perceived likelihood of eviction following rent nonpayment—and indirectly—through the resulting affordability and availability of rental housing.

2 The Model

2.1 Environment

We consider a one-period model of the rental housing market with limited commitment. The economy is populated by a continuum of heterogeneous individuals and competitive landlords. Individuals derive utility from consumption c and housing h, with utility function $U(c, h)$, strictly increasing and concave in both arguments. Each individual receives exogenous stochastic income zy. Productivity $z > 0$, heterogeneous across individuals, is publicly observed at the beginning of the period and drawn from a continuous distribution with strictly positive density. The stochastic component y is i.i.d. across individuals, drawn from a continuous distribution, and realized at the end of the period.

[9] The literature on how rent control can distort housing markets is longstanding and includes papers such as Glaeser and Luttmer (2003). More recent empirical studies of the causal impacts of rent control include Diamond, McQuade, and Qian (2019), Autor, Palmer, and Pathak (2014), and Sims (2007). Kholodilin (2024) reviews the empirical literature on rent control, which generally finds that rent controls lead to higher rents for uncontrolled units and lower housing construction.

[10] See, for example, Haurin, Hendershott, and Kim (1993), Whittington and Peters (1996), and Ermisch and Di Salvo (1997), who find that housing costs and wage opportunities play an important role in the decision to form a household. More recently, Paciorek (2016) and Cooper and Luengo-Prado (2018) examine the short- and long-run determinants of household formation and how these vary with economic and demographic conditions.

Landlords are risk neutral and operate a linear technology that produces rental housing at cost $\delta > 0$ units of the consumption good per unit of housing. They offer contracts that depend on an individual's productivity z. A contract specifies the housing size h and the corresponding rental price $P(h, z)$.[11] Since prices depend explicitly on productivity, the housing market is fully segmented. Competition ensures that landlords break even in expectation in each submarket.

Individuals cannot commit to paying rent. Default entails a stigma cost $\chi \geqslant 0$. With probability $\rho \in (0, 1)$, the defaulter is evicted.[12] In the event of eviction, the individual incurs an additional utility loss $\gamma \geqslant 0$, loses access to the rented housing h, and instead consumes the outside option $\underline{h} > 0$, which can be interpreted as homelessness or living with friends or relatives.[13]

The timing is as follows. At the beginning of the period, productivity z is publicly observed and landlords offer contracts. Given z, each individual chooses a rental contract from the set of offered contracts, or selects the outside option. Income shock y is then realized, after which the renter decides whether to pay or default. If default occurs, eviction is realized. Finally, the individual consumes.

For tractability, we assume that y is uniformly distributed on $[0, \bar{y}]$. The uniform distribution allows us to write the rental price and the individual's utility in closed form. The assumption of the zero lower bound implies that non-payment always occurs with strictly positive probability, reducing the number of possibilities we need to consider.

For further tractability and to highlight the core mechanism, in Subsection 2.2 we assume that the individual's utility is quasi-linear in consumption. In addition to yielding sharp analytical predictions, quasi-linearity allows us to isolate the housing-specific mech-

[11] We abstract from security deposits. Because individuals have no liquid wealth at the time of contracting, deposits are infeasible in the current environment. If liquid wealth were available at that time, deposits would mitigate the limited commitment problem and reduce landlords' losses from nonpayment, thereby expanding the set of offered rental contracts. Thus, with quasi-linear utility, deposits would weakly increase welfare. If liquid wealth increased with productivity z, these gains would be smaller for poorer individuals. With strictly concave utility from non-housing consumption, however, a deposit worsens state-contingent smoothing of non-housing consumption, making its welfare effect generally ambiguous.

[12] We assume that landlords do not recover any of the cost of providing housing in the event of eviction. This assumption significantly simplifies our analytical characterization, although many of our key results survive if landlords recover part of this cost. We also assume that eviction is exogenous. In our one-period model, endogenizing the landlord's decision to file for eviction would be trivial when filing is costless: absent recovery, the landlord is indifferent between filing and not filing following nonpayment; with recovery, the landlord strictly prefers to file. With a fixed filing cost, whether the landlord files would depend on the contract, making the analytical characterization more involved without altering the main mechanism. A richer tradeoff could arise in a two-period model in which the landlord chooses between filing to recover part of the cost and waiting to see whether the tenant's income improves enough to pay the missed rent in the next period. We leave this extension for future work.

[13] Consistent with this interpretation, Liao, Lodermeier, Ortuzar, and Stapleton (2026) document that tenants named in eviction filings often double up with friends or family after filing.

anism from other considerations, such as state-contingent smoothing of non-housing consumption and complementarities between housing and non-housing consumption. In subsection 2.3 we show analytically that our main results extend if instead the utility function is Cobb-Douglas.

2.2 Quasi-Linear Utility

Let $U(c, h) = c + \theta \ln h$, where $c \geqslant 0$ and $\theta > 0$. We start by setting up the agents' problems and deriving the equilibrium pricing of rental housing.

2.2.1 Agents' Problems and Rental Pricing

Let $V^r(z, \rho)$ denote the expected utility of an individual with productivity z, conditional on renting, when the strictness of eviction policy is ρ, and let $V^{out}(z) = z\bar{y}/2 + \theta \ln \underline{h}$ denote the value of taking the outside option. Then the individual's overall expected utility is $V(z, \rho) = \max\left\{V^r(z, \rho),\ V^{out}(z)\right\}$.[14]

Let $\mathcal{H}(z, \rho)$ denote the set of rental housing options available to an individual with productivity z when the strictness of eviction policy is ρ. This set is determined endogenously in equilibrium (see the next subsection). Since partial repayment results in the same punishment as full default, renters optimally choose only between full repayment and default. The renter's problem can thus be written as[15]

$$V^r(z, \rho) = \frac{z\bar{y}}{2} + \max_{h \in \mathcal{H}(z,\rho)} E_y \begin{cases} (1-\rho)\theta \ln h + \rho(\theta \ln \underline{h} - \gamma) - \chi, & \text{if } zy < P(h, z), \\ \max\{\theta \ln h - P(h, z),\ (1-\rho)\theta \ln h + \rho(\theta \ln \underline{h} - \gamma) - \chi\}, & \text{otherwise.} \end{cases}$$

If $zy < P(h, z)$, paying rent would result in negative consumption, which is infeasible, so the tenant defaults. If instead

$$zy \geqslant P(h, z), \tag{1}$$

the tenant is *able to pay*. However, repayment occurs only if the tenant is also *willing to pay*, which requires

$$\theta\rho \ln \frac{h}{\underline{h}} + \chi + \rho\gamma \geqslant P(h, z). \tag{2}$$

[14] Without loss of generality, we assume that if the individual is indifferent between renting and taking the outside option, they choose to rent. Similarly, we assume that if the individual is indifferent between paying and not paying rent, they choose to pay.

[15] With the log utility of housing, the utility loss γ can be equivalently interpreted as a worse outside housing option following eviction than prior to renting—for example, because parents downsize after the individual moves out or because an individual who moves out of state has worse outside housing options. Formally, $\theta \ln \underline{h} - \gamma = \theta \ln(\underline{h}\tilde{\gamma})$, where $\tilde{\gamma} = \exp(-\gamma/\theta) \in (0, 1]$.

Note that condition (2) does not depend on y; it restricts the set of contracts landlords are willing to offer, since any contract violating it would *never* be honored by a tenant. By contrast, the ability-to-pay condition (1) depends on realized income and may be violated for low realizations of y. On the other hand, condition (2) depends on ρ, while condition (1) is independent of it. This dichotomy is a result of quasi-linearity of the utility function, and is what makes our theoretical analysis tractable.

It is worth noting that with quasi-linear preferences there is no strategic default in equilibrium, since rent nonpayment occurs only when a tenant is *unable* to pay. However, the *threat* of strategic default (condition (2)) is critical in determining the set of available rental contracts.

Competition among landlords implies that in each submarket (h, z) contracts must satisfy the break-even condition $\Pr(zy \geqslant P(h,z))P(h,z) = \delta h$, where the left-hand side is expected repayment and the right-hand side is the cost of providing housing.[16] With a uniform distribution of y, this condition simplifies to a quadratic equation in $P(h,z)$: $\left(1 - \frac{P(h,z)}{z\bar{y}}\right) P(h,z) = \delta h$. The equilibrium price, if it exists, is the left root of this equation (otherwise a landlord can profitably undercut at a lower price):

$$P(h,z) = \frac{z\bar{y}}{2}\left(1 - \sqrt{1 - \frac{4\delta h}{z\bar{y}}}\right), \text{ where } h \leqslant \bar{h}(z) \equiv \frac{z\bar{y}}{4\delta}. \tag{3}$$

We immediately have the following simple property of the pricing function:

Lemma 1 (Lower Price for Richer Tenants) *The equilibrium price $P(h,z)$ defined by (3) is strictly decreasing in z for every $h \leqslant \bar{h}(z)$. Proof in Appendix*

The intuition is straightforward. Higher productivity z increases the range of income realizations under which rent repayment is feasible, reducing default risk. As a result, landlords offer lower break-even prices to more productive individuals.

Notice that as h approaches $\bar{h}(z)$, $\partial P(h,z)/\partial h$ approaches $+\infty$. Hence it is never optimal for an individual to rent the largest house satisfying (3), $\bar{h}(z)$.

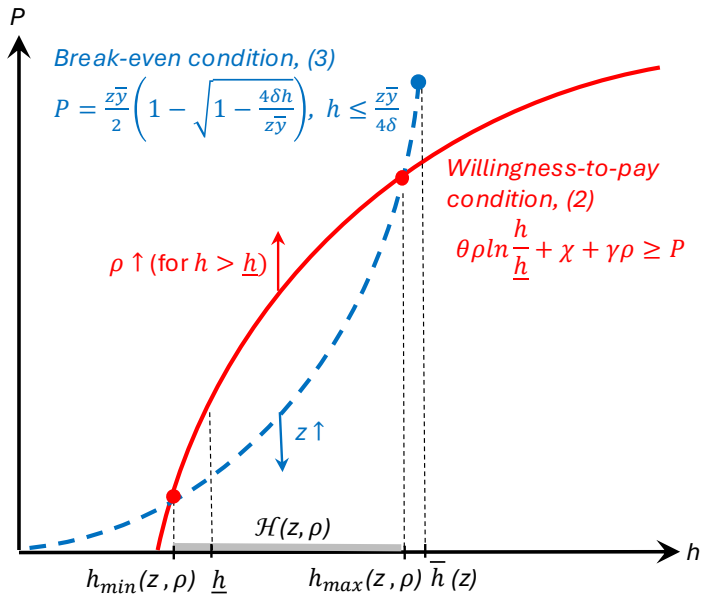
Lemma 2 (Never Rent $\bar{h}(z)$) *The optimal rental housing choice, denoted by $h^r(z,\rho)$, satisfies $h^r(z,\rho) < \bar{h}(z)$. Proof in Appendix*

[16] Note that the price $P(h,z)$ directly enters the probability of repayment. This complication relative to the seminal paper by Eaton and Gersovitz (1981) makes equilibrium price determination a fixed-point problem: the price affects default risk, which in turn affects the break-even price. Corbae, Glover, and Nattinger (2024) assume that tenants pay rent when employed and do not pay when unemployed, so nonpayment does not depend on the rent level and the pricing fixed-point problem does not arise. By contrast, Abramson (2026) faces a pricing fixed point. In his model, however, tenants make the first rent payment before default is possible, so a break-even rent exists for a given house price.

2.2.2 Rental Housing Availability

We now use the above analysis to characterize the set of houses $\mathcal{H}(z, \rho)$ that landlords are willing to offer to a tenant with productivity z when the strictness of eviction policy is ρ. Figure 1 graphically illustrates this characterization. The solid red line in Figure 1 plots the willingness-to-pay condition (2) at equality, so all contracts lying weakly below this line satisfy condition (2). The dashed blue line plots the landlord break-even condition (3). The right endpoint of this line represents the largest house size consistent with the break-even condition, $\bar{h}(z)$. For a house h to be offered to an individual with productivity z in equilibrium, its price must satisfy both the willingness-to-pay condition (2) and the break-even condition (3). Graphically, this requires the contract $(h, P(h, z))$ to lie on the blue line and weakly below the red line. If the two lines do not intersect, no houses are offered to the individual.

Figure 1: Determination of the Set of Available Houses, $\mathcal{H}(z)$



To obtain the analytical counterpart of this characterization, we need to identify the smallest and the largest houses offered to tenant z. We do so by identifying the house sizes for which (2) holds with equality and (3) is satisfied, that is,

$$\theta\rho \ln \frac{h}{\underline{h}} + \chi + \rho\gamma = \frac{z\bar{y}}{2}\left(1 - \sqrt{1 - \frac{4\delta h}{z\bar{y}}}\right). \tag{4}$$

If there is no h solving (4) (e.g., when z, χ, and γ are sufficiently small), then no houses are offered to individual z. Equation (4) has at most two roots. The smallest house offered to individual z, denoted by $h_{\min}(z, \rho)$, is the left root of (4). Denote the largest house offered

to individual z by $h_{max}(z,\rho)$. If $\bar{h}(z)$ and its corresponding break-even price satisfy the willingness-to-pay condition (2), then $h_{max}(z,\rho) = \bar{h}(z)$. Otherwise, $h_{max}(z,\rho)$ is the right root of (4) (this is the case depicted on Figure 1). Thus, $\mathcal{H}(z,\rho) = [h_{min}(z,\rho), h_{max}(z,\rho)]$, as indicated by the shaded region in Figure 1. The following lemma summarizes this analysis.

Lemma 3 (The Set of Available Houses) *(i) If* (4) *has no solution, then* $\mathcal{H}(z,\rho) = \emptyset$. *Otherwise,* $\mathcal{H}(z,\rho) = [h_{min}(z,\rho), h_{max}(z,\rho)]$.

(ii) $h_{min}(z,\rho)$ *is the left root of* (4).

(iii) If $\bar{h}(z)$ *satisfies the willingness-to-pay condition* (2)*, then* $h_{max}(z,\rho) = \bar{h}(z)$. *Otherwise,* $h_{max}(z,\rho)$ *is the right root of* (4). *Proof in Appendix*

It is worth noting that the absence of very small houses, $h < h_{min}(z,\rho)$, in the set of offered rentals is driven by the tenant's incentives to pay rent, which in turn are limited by $\underline{h}$.[17] While the landlords' break-even condition can in principle price arbitrarily small houses, individuals are not willing to pay the break-even price for them, which eliminates such houses from the offered set.

We now turn to comparative statics. Our first result states that more productive individuals face a larger set of housing options. Graphically, this result follows from the fact that the blue line in Figure 1 moves down with z, while the red line is unaffected.

Proposition 1 (More Houses Available to Richer Tenants) *If* $\mathcal{H}(z,\rho) \neq \emptyset$ *then* $\mathcal{H}(z,\rho)$ *is strictly increasing in* z: $h_{min}(z,\rho)$ *is strictly decreasing in* z *and* $h_{max}(z,\rho)$ *is strictly increasing in* z. *Proof in Appendix*

Thus, poor individuals face especially limited housing options and might be more constrained in their choice of housing.

Since individuals will never pay for a house weakly smaller than their free outside option, the relevant set of choices is $\hat{\mathcal{H}}(z,\rho) = \mathcal{H}(z,\rho) \cap (\underline{h}, \infty)$. We refer to $\hat{\mathcal{H}}(z,\rho)$ as the set of relevant available houses. When $\chi = \gamma = 0$, any h satisfying (2) must strictly exceed $\underline{h}$, so $\hat{\mathcal{H}}(z,\rho) = \mathcal{H}(z,\rho)$. Graphically, the value $\underline{h}$ is located at the intersection of the red line with the horizontal axis if $\chi = \gamma = 0$, and to the right of it otherwise (as depicted on Figure 1).

We next study how eviction policy affects the set $\hat{\mathcal{H}}(z,\rho)$.

Proposition 2 (More Houses Available with Stricter Eviction Policies) *If* $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$*, then* $\hat{\mathcal{H}}(z,\rho)$ *is increasing in* ρ. *If* $h_{max}(z,\rho) < \bar{h}(z)$*, then* $\hat{\mathcal{H}}(z,\rho)$ *is strictly increasing in* ρ. *Proof in Appendix*

[17] In the limit as $\underline{h} \to 0$, the left-hand side of (2) approaches $+\infty$, and the willingness-to-pay condition is therefore always satisfied.

Proposition 2 shows that stricter eviction policies expand the set of relevant available housing options. Graphically, an increase in ρ shifts the red willingness-to-pay curve in Figure 1 upward for $h > \underline{h}$, thereby expanding the interval $[h_{\min}(z,\rho), h_{\max}(z,\rho)]$. Intuitively, a higher ρ raises the expected cost of default, which raises tenants' willingness to pay and makes a wider range of contracts sustainable.

We now establish that sufficiently poor individuals are excluded from the rental market. Define

$$\underline{z} \equiv 4\delta\underline{h}/\bar{y},$$

which is the productivity level at which $\bar{h}(\underline{z}) = \underline{h}$. For $z \leqslant \underline{z}$, landlords are only willing to offer houses $h \leqslant \underline{h}$. Graphically, this corresponds to the right endpoint of the blue curve lying weakly to the left of $\underline{h}$. Hence, individuals with $z \leqslant \underline{z}$ are necessarily excluded from the rental market. Notice that the lower bound $\underline{z}$ does not depend on ρ.

Proposition 3 establishes the existence of a threshold productivity $\hat{z}(\rho)$ below which no relevant rental housing options are offered. Define

$$\hat{z}(\rho) = \inf_z \{z : \hat{\mathcal{H}}(z,\rho) \neq \emptyset\}.$$

Proposition 3 (Poor Are Excluded from the Rental Market) *(i) The threshold productivity* $\hat{z}(\rho) \in [\underline{z}, \infty]$ *is such that* $\hat{\mathcal{H}}(z,\rho) = \emptyset$ *if* $z < \hat{z}$ *and* $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$ *if* $z > \hat{z}$.

(ii) The threshold is finite, $\hat{z}(\rho) < \infty$, *if and only if*

$$\begin{cases} \theta\rho\left(\ln\dfrac{\theta\rho}{\delta\underline{h}} - 1\right) + \chi + \rho\gamma > 0, & \text{if } \theta\rho > \delta\underline{h}, \\ \chi + \rho\gamma > \delta\underline{h}, & \text{otherwise.} \end{cases}$$

Proof in Appendix

Note that when the outside option is very attractive, no houses might be acceptable regardless of z, and hence $\hat{z}$ might be infinite. Proposition 3 provides necessary and sufficient conditions for $\hat{z}$ to be finite.

The next result shows how the threshold $\hat{z}(\rho)$ varies with ρ: when the eviction policy is stricter, the marginal renter who is just offered a relevant rental housing option has lower productivity.

Proposition 4 (More Potential Renters with Stricter Eviction Policies) *For any* $\rho' > \rho$, $\hat{z}(\rho') \leqslant \hat{z}(\rho)$. *If* $\hat{\mathcal{H}}(\hat{z}(\rho),\rho) \neq \emptyset$, *then* $\hat{z}(\rho') < \hat{z}(\rho)$. *Proof in Appendix*

Although individuals with $z > \hat{z}(\rho)$ are offered rental contracts, they may still prefer the outside option. Using the willingness-to-pay condition (2), we can show that all indi-

viduals who are offered relevant rental housing options choose to rent when $\chi = \gamma = 0$. (The result generalizes for χ and γ small enough and ρ not too large.) Define $\Delta(z, \rho) \equiv V^r(z, \rho) - V^{out}(z)$.

Proposition 5 (All Who Can Rent Do) *If $\chi = \gamma = 0$, then $\Delta(z, \rho) > 0$ for all ρ and z such that $\hat{\mathcal{H}}(z, \rho) \neq \emptyset$. Moreover, on any fixed range of ρ bounded away from 1, $\Delta(z, \rho) \geqslant 0$ for all such z when χ and γ are sufficiently small. Proof in Appendix*

Thus, under the conditions in Proposition 5, an individual rents iff $\hat{\mathcal{H}}(z, \rho) \neq \emptyset$. Propositions 4 and 5 together imply the following result:

Corollary 1 (Household Formation for Low Utility Cost of Nonpayment and Eviction) *If $\chi = \gamma = 0$, household formation—defined as the set of individuals who rent rather than take the outside option $\underline{h}$—is increasing in ρ and strictly increasing once $\hat{z}(\rho)$ is finite. More generally, on any policy range bounded away from 1 over which $\hat{z}(\rho) < \infty$, household formation is strictly increasing for sufficiently small χ and γ. Proof in Appendix*

Corollary 1 is a special case of Theorem 2, which we state in the next subsection for general values of χ and γ. Before we can state this result generally, we need to characterize the individual's housing choice and welfare as functions of ρ.

2.2.3 Equilibrium Housing Choice, Welfare, and Household Formation

We begin by characterizing the individual's housing choice conditional on renting and then analyze the decision between renting and the outside option. The analysis of the rental housing choice depends on whether the willingness-to-pay constraint (2) binds at the optimal choice. When it does not bind, the choice of h is *unconstrained* (by the willingness-to-pay); when it binds, the individual is restricted to the largest house landlords are willing to offer.

Let $P(h, z)$ be given by (3) and write the renter's objective function as

$$F(h, z, \rho) = \frac{P(h, z)}{z\bar{y}}\Big(\theta(1-\rho)\ln h + \theta\rho \ln \underline{h} - \rho\gamma - \chi\Big) + \left(1 - \frac{P(h, z)}{z\bar{y}}\right)(\theta \ln h - P(h, z)).$$

If (2) does not bind at the optimal rental choice, this choice is

$$h^u(z, \rho) = \arg\max_{h \leqslant \bar{h}(z)} F(h, z, \rho).$$

Note that an increase in ρ hurts the individual in this case because the price is independent of ρ, and the individual loses the house with a larger probability. That is, $\partial V^r/\partial\rho = \partial F/\partial\rho <$

0. To mitigate the loss, the individual chooses a smaller house: $h^u(z,\rho)$ strictly decreases in ρ.

If (2) is violated at $h^u(z,\rho)$, the unconstrained choice is not available. In this case, the optimal choice conditional on renting satisfies $h^r(z,\rho) < h^u(z,\rho)$, and the renter selects the largest house landlords are willing to offer, $h^r(z,\rho) = h_{max}(z,\rho)$ (which is strictly smaller than $\bar{h}(z)$ by Lemma 2). In this case, the chosen housing size is strictly increasing in ρ. Define $\rho^u(z) = \inf\{\rho : h^u(z,\rho) \in \hat{\mathcal{H}}(z,\rho)\}$ (setting $\rho^u(z) = 1$ if the set is empty). The constrained case arises for $\rho < \rho^u(z)$, while the unconstrained case arises for $\rho \geqslant \rho^u(z)$.

Turning to the effect of ρ on the renter's utility, let $\rho^*(z)$ denote the value of ρ that maximizes the individual's utility over the range in which they rent. Consider

$$\frac{dV^r(z,\rho)}{d\rho} = \frac{\partial F(h^r,z,\rho)}{\partial h^r}\frac{\partial h^r}{\partial \rho} + \frac{\partial F}{\partial \rho},$$

where the first term is zero if $h^r = h^u$. If $\rho^*(z)$ is interior, then the above expression is zero at $\rho^*(z)$. Since $\partial F/\partial\rho < 0$, the first term on the right-hand side must be positive and the housing choice at $\rho^*(z)$ must be h_{max}. In this case, between $\rho^*(z)$ and $\rho^u(z)$, $V^r(z,\rho)$ decreases even though $h^r(z,\rho) = h_{max}(z,\rho)$ continues to increase with ρ.

This result may seem counterintuitive because the smaller house chosen under the laxer policy remains available under the stricter policy. Although the individual prefers the larger house given the stricter policy, the benefit from the larger house is more than offset by the greater expected loss following nonpayment. This observation has important implications for policy analysis: evaluating a policy by whether it enables individuals to rent larger housing units can be misleading.

We next discuss when the individual rents as opposed to taking the outside option as we vary ρ. Define $\hat{\rho}(z) = \inf\{\rho : \hat{\mathcal{H}}(z,\rho) \neq \emptyset\}$ as the level of ρ at which an individual with productivity z is first offered relevant rental housing options. For $\rho < \hat{\rho}(z)$, $\hat{\mathcal{H}}(z,\rho) = \emptyset$, and thus the individual has to take the outside option $\underline{h}$. Even when $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$, the individual may still prefer $\underline{h}$ if χ and γ are sufficiently high. Let ρ^{in} denote the threshold at which the individual switches from taking the outside option to renting. Under the conditions in Proposition 5, $\rho^{in} = \hat{\rho}$.[18]

Finally, since the individual's utility conditional on renting decreases with ρ when (2) does not bind, it eventually can fall below the value of the outside option. We denote the threshold for ρ when the individual switches from renting to taking $\underline{h}$ by $\rho^{out}(z)$. Note that $\rho^{out}(z) = 1$ when $\chi = \gamma = 0$.

Combining these cases and denoting the equilibrium housing choice of an individual

[18] When χ and γ are large enough, $\rho^{in} \geqslant \rho^u$. In this case, when the individual chooses to rent, the optimal housing choice is always $h^u(z,\rho)$ (and never $h_{max}(z,\rho)$).

with productivity z at ρ by $h^*(z,\rho)$, we have the following result:

Theorem 1 (Equilibrium Housing Choice and Welfare) *Suppose the individual rents for some ρ. There exist thresholds $\rho^{in}(z) \leqslant \rho^{out}(z)$, with $\rho^{in}(z) \geqslant \hat{\rho}(z)$, and a preferred policy $\rho^*(z) \in [\rho^{in}(z), \rho^{out}(z)]$, such that:*

(i) If $\rho < \rho^{in}(z)$ or $\rho > \rho^{out}(z)$, then $h^*(z,\rho) = \underline{h}$ and $V(z,\rho) = V^{out}(z)$.

(ii) If $\rho \in [\rho^{in}(z), \rho^{out}(z)]$ and $\rho < \rho^u(z)$, then $h^*(z,\rho) = h_{max}(z,\rho)$, strictly increasing in ρ.

(iii) If $\rho \in [\rho^{in}(z), \rho^{out}(z)]$ and $\rho \geqslant \rho^u(z)$, then $h^*(z,\rho) = h^u(z,\rho)$, strictly decreasing in ρ.

(iv) $V(z,\rho)$ is strictly increasing in ρ on $(\rho^{in}(z), \rho^*(z))$ and strictly decreasing on $(\rho^*(z), \rho^{out}(z))$.

If $\rho^{in}(z) < \rho^u(z)$, then $\rho^*(z) < \rho^u(z)$. If $\rho^{in}(z) \geqslant \rho^u(z)$, then $\rho^*(z) = \rho^{in}(z)$. Proof in Appendix

To summarize, the key welfare trade-off in eviction policy design is between stronger commitment under a stricter policy and greater insurance under a laxer policy that allows delinquent tenants to remain housed with higher probability. When the individual's utility initially increases with ρ, the commitment effect dominates at low levels of ρ, when access to rental housing is the primary concern, whereas the insurance effect dominates after $\rho^*(z)$ while the individual continues to rent. This is reflected in housing choices and individual welfare being single-peaked in ρ. If $\rho^*(z)$ is interior, commitment and insurance considerations exactly offset at $\rho^*(z)$.

We now turn to the generalization of Corollary 1 and the model's key testable implication on household formation.

Theorem 2 (Rental Participation and Household Formation) *Suppose that some individuals enter the rental market for some ρ. There exists a threshold $z^{in}(\rho)$, possibly infinite, such that individuals with $z \geqslant z^{in}(\rho)$ enter the rental market, while those with $z < z^{in}(\rho)$ take the outside option. Moreover, there exists $\bar{\rho} \in [0,1]$ such that, over the range in which $z^{in}(\rho) < \infty$, $z^{in}(\rho)$ is strictly decreasing for $\rho < \bar{\rho}$ and strictly increasing for $\rho > \bar{\rho}$. That is, over this range, household formation—the set of individuals who rent rather than take the outside option—is strictly increasing in ρ for $\rho < \bar{\rho}$ and strictly decreasing in ρ for $\rho > \bar{\rho}$. When $\chi = \gamma = 0$, $\bar{\rho} = 1$. Proof in Appendix*

Let $\underline{z}^{in}$ denote the infimum of productivities that rent for some ρ. If $\bar{\rho} \in (0,1)$, then $\rho^{in}(\underline{z}^{in}) = \rho^{out}(\underline{z}^{in}) = \rho^*(\underline{z}^{in}) = \bar{\rho}$. Such an individual is indifferent between renting and taking the outside option at their most preferred ρ, and does not rent for any other ρ. The value $\bar{\rho}$ is the level of ρ at which participation in the rental market (household formation) is maximized. We then define the threshold $z^{in}(\rho) = (\rho^{in})^{-1}(\rho)$ for $\rho \leqslant \bar{\rho}$ and $z^{in}(\rho) = (\rho^{out})^{-1}(\rho)$ for $\rho > \bar{\rho}$, setting $z^{in}(\rho) = \infty$ when no individual rents at ρ. When $\chi = \gamma = 0$, all individuals who are offered relevant rental housing options choose to rent. In this case, $z^{in}(\rho) = \hat{z}(\rho)$ and $\bar{\rho} = 1$.

Theorem 2 provides a testable implication for how eviction policy affects household formation. Importantly, our analysis further indicates that the impact of stricter eviction policies on household formation is heterogeneous across the income distribution. The poorest individuals, with productivity below $\underline{z}^{in}$, are excluded from the rental market regardless of ρ. On the other hand, relatively rich individuals who rent at ρ continue to rent at $\rho' > \rho$ as long as $\rho' \leqslant \bar{\rho}$. Thus, neither group changes its renting decision as eviction policy becomes stricter. The margin of adjustment when the strictness of eviction policy increases from ρ to ρ' comes from individuals with intermediate productivity, $z \in (z^{in}(\rho'), z^{in}(\rho)]$. Consequently, the participation response is concentrated among middle-income groups. Our empirical analysis suggests that this pattern indeed holds in the data.

2.3 Cobb-Douglas Utility and Income Heterogeneity

We now turn to the analysis of heterogeneous welfare effects of eviction policy across the income distribution. Under quasi-linear preferences the scope of income heterogeneity is limited. The reason is that there is no income effect for housing. The only reason why the optimal housing choice increases with the individual's productivity z is that the rent declines in z. The more empirically relevant case is when the housing choice increases in z also due to the income effect.

To understand why the income effect matters for how individuals with different productivities assess the eviction policy, recall that the policy presents the tradeoff between commitment and insurance. The income effect leads higher-productivity individuals to demand more housing. Because the cost of losing a bigger house is higher, the loss of insurance is costlier. At the same time, the higher cost of losing a house translates into stronger incentives to pay rent, in other words, stronger commitment power. Both effects make an individual with a higher productivity prefer a laxer eviction policy.

To explore this mechanism formally, we consider the Cobb-Douglas utility function. Suppose that $U(c, h) = \alpha \ln c + (1-\alpha) \ln h,\ \alpha \in (0,1)$, and y is uniform on $[0, \bar{y}]$.

2.3.1 Agents' Problems, Rental Pricing, and Rental Housing Availability

The individual's problem conditional on renting is

$$V^r(z,\rho) = \max_{h \in \mathcal{H}(z,\rho)} E_y \max\big\{\alpha \ln(zy - P(h,z,\rho)) + (1-\alpha)\ln h, \\ \alpha \ln zy + (1-\alpha)[(1-\rho)\ln h + \rho \ln \underline{h}] - \rho\gamma - \chi\big\}.$$

The renter pays if and only if

$$(1-\alpha)\rho \ln \frac{h}{\underline{h}} + \rho\gamma + \chi \geqslant \alpha(\ln zy - \ln(zy - P)) = -\alpha \ln\left(1 - \frac{P}{zy}\right).$$

Unlike in the quasi-linear case, the willingness to pay and ability to pay are now combined into a single condition. The renter follows a threshold rule: they pay if $y \geqslant \hat{y}$ and default otherwise, where $\hat{y}$ is defined by

$$C(h, \rho) \equiv (1-\alpha)\rho \ln \frac{h}{\underline{h}} + \rho\gamma + \chi = -\alpha \ln\left(1 - \frac{P}{z\hat{y}}\right). \tag{5}$$

The left-hand side of (5), denoted by $C(h, \rho)$, captures the cost of default. Solving for $\hat{y}$ explicitly, we have

$$\hat{y} = \frac{P}{\Omega z}, \quad \text{where } \Omega = 1 - e^{-C/\alpha}.$$

The equilibrium price function satisfies the landlords' break-even condition $(1 - \hat{y}/\bar{y})\, P = \delta h$, or equivalently, $(1 - P/(\Omega z \bar{y}))\, P = \delta h$. As in the quasi-linear case, this is a quadratic equation in P. Taking the smaller root,

$$P = \frac{1}{2}\left(\Omega z\bar{y} - \sqrt{(\Omega z\bar{y})^2 - 4\delta h \Omega z \bar{y}}\right) = \frac{\Omega z \bar{y}}{2}\left(1 - \sqrt{1 - \frac{4\delta h}{\Omega z \bar{y}}}\right).$$

This expression is the analog of equation (3). Define the (scaled) discriminant as

$$D(h, z, \rho) \equiv \Omega(h, \rho) - 4\delta h/(z\bar{y}) \geqslant 0.$$

The following lemma is the analog of Lemma 3 and it characterizes the set of available houses, $\mathcal{H}(z, \rho)$.

Lemma 4 (The Set of Available Houses with Cobb-Douglas Utility) *The set of available houses, $\mathcal{H}(z, \rho)$, is an interval $[h_{\min}(z, \rho), h_{\max}(z, \rho)]$, such that $D(h, z, \rho) \geqslant 0$ iff $h \in [h_{\min}(z, \rho), h_{\max}(z, \rho)]$. If there is no h such that $D(h, z, \rho) \geqslant 0$, then $\mathcal{H}(z, \rho) = \emptyset$. Proof in Appendix*

Propositions 6 and 7 in Appendix A—the analogs if Propositions 1 and 2—establish how the set of available housing changes with z and ρ.

Next, we analyze how productivity z affects how the individual perceives the tradeoff

associated with the eviction policy. Rewrite the renter's objective function as follows:

$$\begin{aligned} F(h, z, \rho) &= \frac{1}{\bar{y}} \int_0^{\hat{y}} [\alpha \ln zy + (1-\alpha)((1-\rho)\ln h + \rho \ln \underline{h}) - \rho\gamma - \chi]\, dy \\ &\quad + \frac{1}{\bar{y}} \int_{\hat{y}}^{\bar{y}} [\alpha \ln(zy - P) + (1-\alpha)\ln h]\, dy \\ &= \alpha E \ln(zy) + (1-\alpha)\ln h - \frac{\hat{y}}{\bar{y}} C + \frac{\alpha}{\bar{y}} \int_{\hat{y}}^{\bar{y}} \ln\left(1 - \frac{P}{zy}\right) dy. \end{aligned}$$

2.3.2 Proportional Benchmark

To illustrate how productivity affects the trade-off associated with the eviction policy, we consider a benchmark that has the income effect (richer people rent larger homes) yet does not make a loss of a larger home more painful. Suppose that the outside housing option is linearly increasing in the individual's productivity: $\underline{h}(z) = \underline{\nu} z$. We will show that in this case the equilibrium simply scales up with z.

Let $\nu = h/z$ and $\Phi = P/z$. Then

$$\Phi = \frac{\Omega \bar{y}}{2}\left(1 - \sqrt{1 - \frac{4\delta\nu}{\Omega \bar{y}}}\right), \quad \hat{y} = \frac{\Phi}{\Omega}, \quad \Omega = 1 - e^{-C/\alpha}, \quad C = (1-\alpha)\rho \ln\left(\frac{\nu}{\underline{\nu}}\right) + \rho\gamma + \chi.$$

The objective function can be rewritten as

$$\tilde{F}(\nu, z, \rho) = \ln z + \alpha E \ln y + (1-\alpha)\ln \nu - \frac{\hat{y}}{\bar{y}} C + \frac{\alpha}{\bar{y}} \int_{\hat{y}}^{\bar{y}} \ln\left(1 - \frac{\Phi}{y}\right) dy.$$

Thus, z enters only through the additively separable term $\ln z$, so the optimal choice of ν is independent of z. Moreover, $V^{out} = \ln z + \alpha E \ln y + (1-\alpha)\ln \underline{\nu}$, so the rental-market participation choice is also independent of z. An increase from z to z' leaves ν^{ρ^*} unchanged, scales h^* by z'/z, and increases V by $\ln(z'/z)$. Hence, $\rho^*(z)$ is independent of z in the proportional benchmark.

Intuitively, although income increases with z, the insurance loss from eviction does not change because $h/\underline{h} = \nu/\underline{\nu}$ is independent of z. Hence, individuals with different z perceive the tradeoff associated with the eviction policy in the same way. Next, we are going to keep the income effect but eliminate the feature that the cost of losing the house is independent of z.

2.3.3 Eviction Policy and Heterogeneity

Now return to the original environment in which $\underline{h}$ is fixed. An increase in z can be equivalently viewed (for the rental decision) as a decrease in $\underline{\nu} = \underline{h}/z$. Both $\underline{\nu}$ and ρ affect the renter's problem only through the incentives to pay captured by C. For any given ν, a decrease in $\underline{\nu}$ can be offset by a decrease in ρ that keeps C fixed. In this sense, z and ρ act as "technological substitutes" in commitment.

Formally, let $\nu^r(z,\rho) = h^r(z,\rho)/z$. Let $\rho^*(z) = \inf \arg\max_\rho V(z,\rho)$ denote the most-preferred ρ for an individual with productivity z. Define $\nu^{\rho^*}(z) = \nu^r(z,\rho^*(z))$.

Theorem 3 (Heterogeneous Welfare Effects of Eviction Policy) *Consider $z' > z$. Suppose that, for every $\tilde{z} \in [z,z']$, the individual strictly prefers renting, the preferred pair $(\nu^{\rho^*}(\tilde{z}), \rho^*(\tilde{z}))$ is unique, and $\rho^*(\tilde{z}) \in (0,1)$. Then $\rho^*(z') < \rho^*(z)$ and $\nu^{\rho^*}(z') = \nu^{\rho^*}(z)$. Proof in Appendix*

Theorem 3 implies that poorer individuals prefer stricter eviction policies than richer individuals. Because richer individuals choose larger houses, the cost of losing the house is higher and incentives to pay are stronger. Consequently, stricter eviction policies are both more costly and less beneficial for them. This result highlights the central role of heterogeneity in eviction policy design.

2.3.4 Productivity-Dependent Outside Housing Option

The proportional benchmark in subsection 2.3.2 shows that if the outside housing option were linear in z instead of constant, then $\rho^*(z)$ would be constant in z. But so long as $\underline{\nu}(z) = \underline{h}(z)/z$ is strictly decreasing in z, our main results continue to hold.

Formally, suppose now that $\underline{h} : (0,\infty) \to (0,\infty)$, and let $\underline{\nu}(z) = \underline{h}(z)/z$ and $\nu = h/z$. The cost of default changes to $\tilde{C}(\nu,z,\rho) = (1-\alpha)\rho \ln(\nu/\underline{\nu}(z)) + \rho\gamma + \chi$ and the (scaled) discriminant in the landlords' break-even condition changes to

$$\widetilde{D}(\nu,z,\rho) = 1 - e^{-\tilde{C}/\alpha} - \frac{4\delta\nu}{\bar{y}} \geqslant 0. \tag{6}$$

For a fixed z, the interval characterization in Lemma 4 is unchanged, and the relevant available set remains strictly increasing in ρ, as in Proposition 7. If $\underline{\nu}(z') < \underline{\nu}(z)$ for $z' > z$, an increase from z to z' raises $\widetilde{D}$ at every fixed ν. Hence the available set normalized by z expands: $\nu_{\min}(z') < \nu_{\min}(z)$ and $\nu_{\max}(z') > \nu_{\max}(z)$, where $\nu_{\min}(z,\rho) = h_{\min}(z,\rho)/z$ and $\nu_{\max}(z,\rho) = h_{\max}(z,\rho)/z$. Consequently, $h_{\max}(z') > h_{\max}(z)$. By contrast, $h_{\min}(z) = z\nu_{\min}(z)$ need not decrease because z and $\nu_{\min}(z)$ move in opposite directions. Proposition 8 in Appendix A gives a sufficient condition for $h_{\min}$ to strictly decrease with z.

As in the case with a constant $\underline{h}$, z and ρ continue to act as substitutes in commitment. That is, for $z' > z$ such that $\underline{\nu}(z') < \underline{\nu}(z)$, a stricter policy $\rho' > \rho$ at z can keep $\tilde{C}$ equal to its value at (z', ρ). Theorem 3 continues to hold if $\underline{\nu}(z)$ is strictly decreasing in z locally.

3 Empirical Analysis

In this section, we first describe the data used in our empirical analysis. We then introduce our eviction policy index and explain why it provides an economically meaningful measure of eviction policies. Finally, we examine whether the data are consistent with the predictions of our theoretical model.

3.1 Data Description

We use data from three sources. The first one is the Eviction Lab, which reports annual eviction filings, threatened households, and eviction judgments at the census-tract level.[19] In this dataset, eviction "filings" are the number of cases landlords file in court to remove tenants from a property in a given year. It is common for a landlord to issue a series of eviction filings against the same household. To account for this, "threatened" households are defined as the number of unique households that receive at least one eviction filing in a given year. "Judgments" are the number of court-enforced evictions in which renters were ordered to leave, counted once per household that received an eviction judgment. Filing, threatened, and judgment rates are calculated as the corresponding numbers per 100 renter households.[20] We use data from 2000 to 2018, the years covered in the publicly available Eviction Lab data.

We also use data from the American Community Survey (ACS) conducted by the U.S. Census Bureau. For individual-level variables, we use annual data from 2005 to 2019. For census-tract-level variables, we use four consecutive five-year ACS samples—2011–2015, 2012–2016, 2013–2017, and 2014–2018.

Finally, we use data on rental nonpayment from the Survey of Income and Program Participation (SIPP) from the 2014, 2018, and 2019 panels. While the 2014 and 2018 panels contain multiple waves, we restrict attention to the first wave of each to avoid issues of attrition, which are likely correlated with rental nonpayments and evictions. In the resulting sample, 10% of renters report having been behind on rent in the past 12 months, indicating

[19] See Gromis, Fellows, Hendrickson, Edmonds, Leung, Porton, and Desmond (2022) for the data source.

[20] In our sample, the average filing rate is 8%, the average threatened rate is 6.1%, and just under half of threatened households (2.8% of all renters) received an eviction judgment.

that nonpayment is a relatively common phenomenon.[21]

3.2 Eviction Policy Index

To enable empirical analysis of eviction policies, we construct a simple and accessible measure of eviction policy across U.S. jurisdictions. We define the Eviction Policy Index (EPI) as the ratio of eviction judgments to eviction filings in a jurisdiction. The EPI is based on realized case outcomes rather than statutory classifications of eviction law.[22] It therefore captures not only formal law but also court procedures, local legal practices, and enforcement. Higher values correspond to stricter eviction policy. To construct the index, we sum each jurisdiction's annual counts of judgments and filings over 2000–2018 and compute EPI as the total judgments divided by the total filings.[23]

Our preferred notion of a jurisdiction is a U.S. state, but we also present analysis using the county-level EPI (see Appendix B.2). There are compelling arguments for treating both states and counties as the relevant jurisdiction for eviction policies: while most legislation is enacted at the state level, many counties and cities have their own regulations and legal practices.

To ensure that our EPI is measured using jurisdictions with sufficient coverage by the Eviction Lab, we restrict our analysis to states that satisfy the following criterion. We only include states for which the counties covered by the Eviction Lab constitute, on average over the years of coverage, at least 10 percent of renters, where the number of renters is taken from the ACS. There are 35 states which meet this coverage criterion. For the county-level analysis, we use all counties with available Eviction Lab data that can be identified in the ACS.

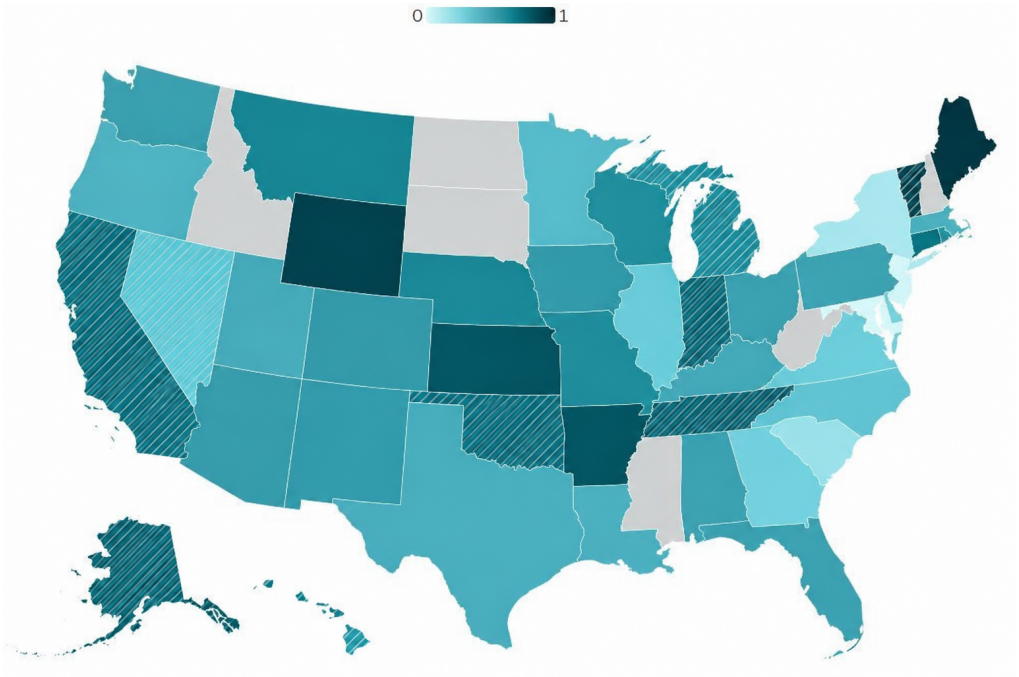
State-level EPI values are mapped in Figure 2 and listed in Table B1 in Appendix B.1. States that do not satisfy the coverage criterion are shaded on the figure and marked by an asterisk in the table.

[21] For comparison, the share of homeowners who report missing a housing payment in that sample is 4%.

[22] There are several categorizations of states' eviction policies based on the *letter of the law* in the legal literature—see, e.g., Rabin (1983), Mercer-Falkoff (1980), and Hatch (2017). We have also attempted constructing our own index based on data from the LawAtlas Project (Policy Surveillance Program, 2023). However, legalistic indexes do not appear to quantitatively capture the relevant variation in eviction policy: for example, regressions in Merritt and Farnworth (2021) show that the categorization in Hatch (2017) does not have a clear relation with eviction filing rates across states. The correlation of our EPI with the categorization in Hatch (2017)—indexing pro-tenant as 0, pro-landlord as 1, and in-between as 0.5—is 0.07.

[23] Our index is robust to changes in the range of years used to construct it.

Figure 2: Eviction Policy Index by U.S. States



Note: Missing data for some states are due to the lack of coverage in the Eviction Lab data.

3.3 Index Validation

In this section, we validate the index by testing whether higher EPI is negatively related to rent nonpayment, conditional on observables. We perform two exercises. First, using the SIPP data, we regress an indicator for being behind on rent on EPI. Table 1 reports the results. Column (1) presents estimates without controls, while column (2) adds controls for income, rent, and other variables. The coefficient on EPI is negative in both specifications and is significant at the 1% level once controls are included.

While the advantage of the SIPP is that it contains information on rental nonpayments, the dataset is small and there are limitations in the quality of the data. We therefore turn to the Eviction Lab data and use the threatened rate as a proxy for rental nonpayment. Specifically, we regress threatened rates at the census-tract level on the state EPI, controlling for tract-level characteristics such as median rent and unemployment. Table 2 reports the results.[24] We find that locations with higher EPI values tend to have significantly lower threatened rates. In addition, the EPI serves as a useful proxy for state fixed effects, capturing roughly half of the variation in the regression R^2 explained by including state fixed effects directly (adding the EPI raises the R^2 from 0.303 to 0.406, compared with 0.523 when

[24]Using the filing rate instead of the threatened rate as a proxy for rental nonpayment produces similar results, see Table B2 in Appendix B.1.

Table 1: Regression of Rental Nonpayment on EPI Using SIPP

	(1)	(2)
EPI	-0.026	-0.039***
	(0.019)	(0.014)
Log Monthly Household Income		-0.007***
		(0.001)
Log Monthly Rent		-0.001
		(0.002)
College Degree		-0.062***
		(0.006)
Unemployment Spell		0.020***
		(0.006)
Age		0.007***
		(0.001)
Age^2		-0.000***
		(0.000)
Year Fixed Effect		X
Mean	0.099	0.099
Obs	13,295	13,295
R^2	0.000	0.024

Note: The outcome variable is a binary variable that equals 1 if the household has been behind on rent payment in the past 12 months and 0 otherwise. Observations only include renter households. Individual characteristics are of the household head. Column (2) includes year fixed effects. Regressions are weighted using the SIPP sample weights. Income is winsorized at zero before adding one and taking log. The sample includes 35 states with an average renter-household coverage of at least 10 percent. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

state fixed effects are included.)

We also compute the EPI at the county level, for all counties in which the Eviction Lab reports tract-level data. While we cannot re-run the regression on rental nonpayments because of SIPP data limitations, we do re-run the regression on threatened rates using county-level EPIs. The results, reported in Table B4 in Appendix B.2, closely mirror those in Table 2, further validating our index.

Taken together, these findings suggest that the EPI is a sensible measure of the strictness of eviction policy: it correlates with measures of rental nonpayment in the expected direction.

3.4 EPI and Household Formation

We now examine whether the relationship between the EPI and household formation is consistent with the model's prediction. Corollary 1 states that household formation increases in ρ, the strictness of eviction policy. Stricter eviction policy allows landlords to offer more rental housing, enabling individuals who previously chose the outside option (such as living with parents) to enter the rental market. We estimate two regressions.

In our first regression, we use ACS data to construct a binary variable equal to 1 if the in-

Table 2: Regression of Census Tract Average Threatened Rates on EPI

	(1)	(2)	(3)	(4)
EPI	-12.178***	-13.174***		
	(2.786)	(2.457)		
Log Median Rent		0.750	1.031*	2.049
		(0.697)	(0.581)	(1.242)
Log Median Renter Household Income		0.372	0.079	0.638
		(0.375)	(0.299)	(0.512)
Unemployment Rate		0.063	0.095***	0.086*
		(0.043)	(0.029)	(0.046)
Log Median Home Value		-2.199**	-0.835*	-0.940
		(0.826)	(0.412)	(0.959)
State Fixed Effect			X	
Year and Demographic Controls		X	X	X
Mean	6.038	6.038	6.038	6.038
Obs	28,048	28,048	28,048	28,048
R^2	0.116	0.406	0.523	0.303

Note: The outcome variable is the average eviction threatened rate of the census tract for the previous five years, conditional on availability. Only one observation is used per census tract, the last year it is observed. Tracts with average filing rates above 100 are excluded. The control variables consist of the 5-year tract variables from the ACS, as well as the state EPI. Demographic controls include tract education and age compositions. Column (2) includes the state EPI, while (3) includes state fixed effects. Column (4) includes only the control variables. Regressions are weighted by number of renting households per the census tract. The sample includes 35 states with an average renter-household coverage of at least 10 percent. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

dividual lives in a household where a parent or parent-in-law is the household head, and 0 otherwise.[25] We regress this variable on the EPI—the empirical counterpart of ρ—together with additional controls. Table 3 reports the results.

In our main specification (columns (1)–(3)), we restrict the sample to individuals ages 18 to 35, excluding students. The coefficient on the EPI is negative and significant at the 1% level, consistent with the model's prediction. To get an idea of the magnitude, consider column (2). The difference between the Illinois EPI (0.28) and the Ohio EPI (0.511) corresponds to a 2.8 percentage point lower fraction of young individuals living with parents.[26]

Our theoretical analysis further suggests that the effect of eviction policy on entering the rental market is strongest among individuals with intermediate income levels. To examine this pattern in the data, we interact the EPI with binary indicators for income quartiles (column (3)). The estimated relationships between the EPI and living with parents are negative across all quartiles, strongest for the third quartile, stronger for the second than for the first, and weakest for the fourth quartile. This pattern indicates that as income increases, the relationship between the EPI and living with a parent first becomes more negative and

[25] We cannot observe whether an unmarried individual is living with a parent of their partner due to ACS data limitations. So this construction of the dependent variable would incorrectly identify such an individual as having formed a household (i.e., not living with parents). This issue will not arise in our second regression specification, reported in Table 4.

[26] The state-level EPI values can be found in Table B1.

Table 3: Regression of Living with a Parent on EPI Using ACS

	Ages 18-35 (1)	Ages 18-35 (2)	Ages 18-35 (3)	Ages 40-60 (4)
EPI	-0.090***	-0.121***	-0.094***	-0.033**
	(0.030)	(0.035)	(0.025)	(0.016)
Log Income		-0.018***		-0.010***
		(0.001)		(0.000)
Income Quartile 2			-0.061***	
			(0.007)	
Income Quartile 3			-0.114***	
			(0.011)	
Income Quartile 4			-0.204***	
			(0.017)	
EPI × Income Quartile 2			-0.035**	
			(0.015)	
EPI × Income Quartile 3			-0.078***	
			(0.023)	
EPI × Income Quartile 4			-0.052	
			(0.036)	
Log Average State Home Value		-0.014	0.001	-0.065*
		(0.053)	(0.054)	(0.032)
Age		-0.020***	-0.017***	-0.005***
		(0.001)	(0.001)	(0.000)
Year and Demographic Controls		X	X	X
Mean	0.351	0.351	0.351	0.145
Obs	3,292,218	3,292,218	3,292,218	2,455,119
R^2	0.001	0.143	0.155	0.076

Note: The outcome variable is a binary variable that equals 1 if the individual lives in a household in which their parent or a parent-in-law is the head of the household, and 0 otherwise. Columns (2) through (4) include year, race, gender, and marital status controls. Regressions include only individuals not in group quarters nor currently in school, of ages 18 to 35 for columns (1) through (3), and ages 40 to 60 for column (4). The sample consists of renters plus residents of owner households who are not the head, spouse, or unmarried partner. Income is winsorized at zero before adding one and taking log. Regressions are weighted by ACS person weights. The sample includes 35 states with an average renter-household coverage of at least 10 percent. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

then less negative, consistent with the model's predictions for $\rho < \bar{\rho}$. Taken together, these results highlight the importance of heterogeneity across the income distribution.

Intuitively, our predictions are most relevant for younger individuals deciding whether to move out of their parents' homes, so we expect the relationship between the EPI and living with parents to be weaker for older individuals. To examine this, column (4) of Table 3 reports the same specification as column (2) for individuals ages 40 to 60. For this group, the estimated relationship between EPI and living with parents is much smaller than for ages 18–35.[27] Thus, a higher EPI is associated with lower cohabitation with parents among the young, while the relationship is much weaker among middle-aged individuals

In our second regression, the dependent variable is a binary indicator equal to 1 if the individual is the household head or the spouse, unmarried partner, or housemate of the

[27] As expected, the average cohabitation-with-parents rate is also lower for ages 40–60 than for ages 18–35.

Table 4: Regression of Being a Household Head on EPI Using ACS

	Ages 18-35 (1)	Ages 18-35 (2)	Ages 18-35 (3)	Ages 40-60 (4)
EPI	0.128***	0.138***	0.100***	0.050
	(0.032)	(0.037)	(0.030)	(0.035)
Log Income		0.023***		0.021***
		(0.001)		(0.001)
Income Quartile 2			0.068***	
			(0.008)	
Income Quartile 3			0.133***	
			(0.016)	
Income Quartile 4			0.264***	
			(0.020)	
EPI × Income Quartile 2			0.064***	
			(0.016)	
EPI × Income Quartile 3			0.109***	
			(0.032)	
EPI × Income Quartile 4			0.055	
			(0.041)	
Log Average State Home Value		-0.010	-0.031	0.063
		(0.058)	(0.058)	(0.074)
Age		0.022***	0.019***	-0.002***
		(0.001)	(0.001)	(0.000)
Year and Demographic Controls		X	X	X
Mean	0.526	0.526	0.526	0.692
Obs	3,292,218	3,292,218	3,292,218	2,455,119
R^2	0.002	0.209	0.226	0.106

Note: The outcome variable is a binary variable that equals 1 if the individual is a household head or a spouse/unmarried partner/housemate of a household head, and 0 otherwise. Columns (2) through (4) include year, race, gender, and marital status controls. Regressions include only individuals not in group quarters nor currently in school, of ages 18 to 35 for columns (1) through (3), and ages 40 to 60 for column (4). The sample consists of renters plus residents of owner households who are not the head, spouse, or unmarried partner. Income is winsorized at zero before adding one and taking log. Regressions are weighted by ACS person weights. The sample includes 35 states with an average renter-household coverage of at least 10 percent. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

household head, and 0 otherwise. The rest of the specification is the same as in Table 3. The results, reported in Table 4, are consistent with those from the first regression and also hold for this alternative outcome. In particular, stricter eviction policies are associated with greater likelihood of being a household head among young individuals, and the relationship first strengthens and then weakens with income.

Our results on household formation are robust both to using county-level EPI (see Tables B5 and B6 in Appendix B.2). Moreover, the results are robust to controlling for the individuals' college attainment and allowing for the relationship between the EPI and household formation to vary across educational groups (see Tables B3 and B7)—a higher EPI is associated with greater household formation for both educational groups.

4 Conclusion

We constructed a tractable model of evictions and examined how eviction policy affects availability and affordability of rental housing to prospective tenants across the income distribution. Our main finding is that a stricter eviction policy enlarges the set of available rental housing, leading (under certain conditions) to greater household formation among relatively poor—but not the poorest—individuals. This prediction is consistent with our empirical findings. To conduct the empirical analysis, we constructed a novel index of eviction policy using data from the Eviction Lab. This index is negatively correlated with available measures of rental nonpayment.

Future empirical research could investigate the extent to which eviction policies in the United States are shaped by state laws versus local (city or county) regulations. Our index can be constructed at either jurisdictional level.

An interesting direction for further theoretical analysis is to model the supply of rental housing more explicitly. While our framework assumes a perfectly elastic, constant-marginal-cost supply of rental units, a more realistic approach could allow for increasing marginal costs, for example due to a fixed factor such as land. Such a model would generate equilibrium price effects from the entry of additional renters in response to a stricter eviction policy. These price spillovers would further harm richer tenants and attenuate the positive effects of stricter policies on poorer ones.

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Appendices

A Proofs

Proof of Lemma 1: Denote $t = \sqrt{1 - \frac{4\delta h}{z\bar{y}}}$. Differentiating (3) with respect to z, we have

$$\frac{\partial P}{\partial z} = \frac{\bar{y}}{2}\left[1 - t - \frac{4\delta h}{2tz\bar{y}}\right] = \frac{\bar{y}}{2}\left[1 - t - \frac{1-t^2}{2t}\right] = \frac{\bar{y}(1-t)}{2}\left[1 - \frac{1+t}{2t}\right] = -\frac{\bar{y}}{4t}(1-t)^2 < 0. \quad \square$$

Proof of Lemma 2: Differentiating (3) with respect to h, $\partial P/\partial h = \delta\left(1 - \frac{4\delta h}{z\bar{y}}\right)^{-1/2} \to +\infty$ as $h \to \bar{h}(z)$. Hence a marginal decrease in h from $\bar{h}(z)$ strictly increases the individual's utility, which implies that $h^r(z,\rho) < \bar{h}(z)$. $\square$

Proof of Lemma 3: (i) Since the blue line in Figure 1 is above the red curve as $h \to 0$, the only way that (4) has no solution is that the blue curve is everywhere above the red curve, meaning no house can be offered in equilibrium.

(ii) Since for $h < h_{\min}(z,\rho)$ the red curve is below the blue curve, such h do not satisfy (2) at the equilibrium price.

(iii) Since the blue curve is convex and the red curve is concave, they cross at most twice. If at $\bar{h}(z)$ condition (2) holds with strict inequality, then there is no second crossing and $h_{\max}(z,\rho) = \bar{h}(z)$. Otherwise, $h_{\max}(z,\rho)$ is the right root of (4). $\square$

Proof of Proposition 1: The upper bound of $\mathcal{H}(z,\rho)$ is either the right root of (4) or $\bar{h}(z)$. The latter is strictly increasing in z. The left-hand side of (4) is independent of z, while the right-hand side is strictly decreasing in z by Lemma 1. This means that the blue curve in Figure 1 moves downward, while the red curve remains unchanged. Hence, the right root of (4) shifts to the right and the left root ($h_{\min}(z,\rho)$) moves to the left. If $\mathcal{H}(z,\rho)$ is a singleton $\{h\}$, then for any $z' > z$, $P(h,z') < P(h,z)$, so (2) holds with strict inequality at h. By continuity, an interval containing h is available at z'. $\square$

Proof of Proposition 2: The upper bound of $\hat{\mathcal{H}}(z,\rho)$ is either the right root of (4) or $\bar{h}(z)$. The latter does not vary with ρ. Since $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$, the right root exceeds $\underline{h}$. The right-hand side of (4) is independent of ρ, while the left-hand side is strictly increasing in ρ for $h > \underline{h}$. This means that the red curve in Figure 1 moves upward while the blue curve remains unchanged. Hence the left root of (4) ($h_{\min}(z,\rho)$) moves to the left while the right root moves to the right.

The lower bound of $\hat{\mathcal{H}}(z,\rho)$ is either $h_{\min}(z,\rho)$ or $\underline{h}$. The latter does not vary with ρ.

If the lower bound is $h_{\min}(z,\rho)$ then $h_{\min}(z,\rho) > \underline{h}$, and thus is strictly decreasing in ρ. If $\hat{\mathcal{H}}(z,\rho)$ is a singleton $\{h\}$, then $h > \underline{h}$, and for any $\rho' > \rho$ (2) holds with strict inequality at h. By continuity, an interval containing h belongs to $\hat{\mathcal{H}}(z,\rho')$. □

Proof of Proposition 3: (i) By Proposition 1, once $\hat{\mathcal{H}}(z,\rho)$ is nonempty, it remains nonempty as z increases. Hence, by the definition of $\hat{z}(\rho)$, $\hat{\mathcal{H}}(z,\rho) = \emptyset$ for $z < \hat{z}(\rho)$ and $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$ for $z > \hat{z}(\rho)$. Since the right-hand side of (4) is strictly decreasing in z (Lemma 1), $\hat{\mathcal{H}}(z,\rho) = \emptyset$ for any $z < \hat{z}$, and for $z > \hat{z}$, it becomes an interval. If $\bar{h}(z) < \underline{h}$, then $\hat{\mathcal{H}}(z,\rho) = \emptyset$. Since $\bar{h}(\underline{z}) = \underline{h}$, $\hat{z} \geqslant \underline{z}$. At $\hat{z}$, $\hat{\mathcal{H}}(z,\rho)$ may be a singleton or an empty set. If availability begins through an interior tangency at $h > \underline{h}$, $\hat{\mathcal{H}}(z,\rho)$ is a singleton at $z = \hat{z}$. If it begins through the boundary $h = \underline{h}$, $\hat{\mathcal{H}}(z,\rho)$ is still empty at equality because $\hat{\mathcal{H}}(z,\rho)$ is defined to be strictly to the right of $\underline{h}$.

(ii) We first show that $P(h,z)$ given by (3) approaches δh as $z \to \infty$. Recall that $P(h,z)$ is defined by $\left(1 - \frac{P(h,z)}{z\bar{y}}\right) P(h,z) = \delta h$. Hence $\lim_{z\to\infty} P(h,z) = \delta h$. Moreover, $P(h,z) > \delta h$ for finite z. Graphically, it means that in the limit the blue line on Figure 1 becomes δh. If the red line is tangent to δh (rather than intersecting it), then $\hat{\mathcal{H}}(\infty)$ is singleton and hence $\hat{z} = \infty$. For $\hat{z}$ to be finite, we need that the red line intersects δh twice. Thus, we need that at the point h at which the slope of the red line equals δ, the red line is strictly above δh. Put differently, for $\hat{z}$ to be finite we need $\sup_{h\geqslant\underline{h}} \theta\rho \ln \frac{h}{\underline{h}} + \chi + \rho\gamma - \delta h > 0$. If the arg sup is interior, $h = \theta\rho/\delta > \underline{h}$, then the relevant condition is $\theta\rho\left(\ln\frac{\theta\rho}{\delta\underline{h}} - 1\right) + \chi + \gamma\rho > 0$. And if $\theta\rho/\delta \leqslant \underline{h}$, then the relevant condition is $\chi + \rho\gamma > \delta\underline{h}$. □

Proof of Proposition 4: By Proposition 2, every relevant rental housing option available at ρ remains available at $\rho' > \rho$. Hence $\hat{z}(\rho') \leqslant \hat{z}(\rho)$. If $\hat{\mathcal{H}}(\hat{z}(\rho),\rho) \neq \emptyset$, let $h \in \hat{\mathcal{H}}(\hat{z}(\rho),\rho)$. Since $h > \underline{h}$, (2) holds with strict inequality at $\rho' > \rho$. By continuity, $\hat{\mathcal{H}}(z',\rho') \neq \emptyset$ for some $z' < \hat{z}(\rho)$. Hence $\hat{z}(\rho') < \hat{z}(\rho)$. □

Proof of Proposition 5: Denote by $h^r(z) \in \hat{\mathcal{H}}(z,\rho)$ the optimal choice of housing by an individual with productivity z, conditional on renting, and by $P^r(z) = P(h^r(z),z)$ the corresponding equilibrium price. The expected utility of a renter is

$$\begin{aligned} V^r(z,\rho) &= \frac{z\bar{y}}{2} + \frac{P^r(z)}{z\bar{y}}\left[(1-\rho)\theta \ln h^r(z) + \rho\left(\theta \ln \underline{h} - \gamma\right) - \chi\right] \\ &\quad + \left[1 - \frac{P^r(z)}{z\bar{y}}\right]\left[\theta \ln h^r(z) - P^r(z)\right] \\ &= \frac{z\bar{y}}{2} + \theta \ln h^r(z) - \frac{P^r(z)}{z\bar{y}}\left[\rho\theta \ln \frac{h^r(z)}{\underline{h}} + \rho\gamma + \chi\right] - \left[1 - \frac{P^r(z)}{z\bar{y}}\right] P^r(z). \end{aligned} \tag{7}$$

It follows that

$$\begin{aligned}\Delta(z,\rho) &= \theta \ln \frac{h^r(z)}{\underline{h}} - \frac{P^r(z)}{z\bar{y}}\left[\rho\theta \ln \frac{h^r(z)}{\underline{h}} + \rho\gamma + \chi\right] - \left[1 - \frac{P^r(z)}{z\bar{y}}\right] P^r(z) \\ &\geqslant (1-\rho)\theta \ln \frac{h^r(z)}{\underline{h}} - \rho\gamma - \chi,\end{aligned}$$

where the inequality follows from (2) and $0 \leqslant P^r(z)/(z\bar{y}) \leqslant 1$.

If $\chi = \gamma = 0$, then

$$\Delta(z,\rho) \geqslant (1-\rho)\theta \ln \frac{h^r(z)}{\underline{h}}.$$

Since $h^r(z) \in \hat{\mathcal{H}}(z,\rho)$, we have $h^r(z) > \underline{h}$. Hence, $\Delta(z,\rho) > 0$ for every $\rho < 1$ and every z such that $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$.

Now fix any range of ρ bounded away from 1. Then there exists $\varepsilon > 0$ such that $1-\rho \geqslant \varepsilon$ throughout this range. For any $h \in \hat{\mathcal{H}}(z,\rho)$, the break-even condition and (2) imply

$$\delta h \leqslant P(h,z) \leqslant \rho\theta \ln \frac{h}{\underline{h}} + \chi + \rho\gamma \leqslant \theta \ln \frac{h}{\underline{h}} + \chi + \gamma.$$

Since $\delta h - \theta \ln(h/\underline{h})$ is continuous in h and equals $\delta\underline{h} > 0$ at $h = \underline{h}$, there exists $\eta > 0$ such that $\delta h - \theta \ln(h/\underline{h}) > \delta\underline{h}/2$ for every $h \in [\underline{h}, \underline{h}+\eta]$. Therefore, if $\chi + \gamma \leqslant \delta\underline{h}/2$, no house in this interval belongs to $\hat{\mathcal{H}}(z,\rho)$. In particular, $h^r(z) > \underline{h} + \eta$. Consequently,

$$\Delta(z,\rho) \geqslant (1-\rho)\theta \ln \frac{h^r(z)}{\underline{h}} - \rho\gamma - \chi \geqslant \varepsilon\theta \ln \frac{\underline{h}+\eta}{\underline{h}} - \gamma - \chi.$$

Thus, on any fixed range of ρ bounded away from 1, $\Delta(z,\rho) \geqslant 0$ for all z such that $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$, provided that χ and γ are sufficiently small. □

Proof of Corollary 1: By Proposition 5, when $\chi = \gamma = 0$, an individual rents if and only if $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$. Household formation is therefore determined by $\hat{z}(\rho)$. By Proposition 4, $\hat{z}(\rho)$ is weakly decreasing in ρ. Moreover, when $\chi = \gamma = 0$, the willingness-to-pay condition fails for houses sufficiently close to $\underline{h}$. Thus, if $\hat{z}(\rho) < \infty$, relevant rental housing options cannot first become available at $h = \underline{h}$. By continuity, $\hat{\mathcal{H}}(\hat{z}(\rho),\rho) \neq \emptyset$. Proposition 4 then implies that $\hat{z}(\rho)$ is strictly decreasing once it is finite.

More generally, on any fixed range of ρ bounded away from 1, Proposition 5 gives the same characterization of renters when χ and γ are sufficiently small. For sufficiently small χ and γ, the same argument implies that $\hat{\mathcal{H}}(\hat{z}(\rho),\rho) \neq \emptyset$ throughout any such range on which $\hat{z}(\rho) < \infty$. Proposition 4 then implies that $\hat{z}(\rho)$ is strictly decreasing throughout this range. □

Lemma 5 *If $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$, then $\Delta(z',\rho) > \Delta(z,\rho)$ for every $z' > z$.*

Proof: The individual with productivity z' can rent $h^r(z)$ by Proposition 1. For any fixed h, using (3), the utility gain from renting this house is

$$\theta \ln \frac{h}{\underline{h}} - \delta h - \frac{P(h,z)}{z\bar{y}} \left[\rho\theta \ln \frac{h}{\underline{h}} + \rho\gamma + \chi\right].$$

By (3), $P(h,z)/(z\bar{y})$ is strictly decreasing in z. Thus, the individual with productivity z' obtains a strictly higher utility gain from renting $h^r(z)$ than the individual with productivity z. Hence $\Delta(z',\rho) > \Delta(z,\rho)$. □

Lemma 6 *The renter's objective function $F(h,z,\rho)$ is strictly concave in h on $(\underline{h}, \bar{h}(z))$.*

Proof: Rewrite the renter's objective function as

$$F(h,z,\rho) = \theta \ln h - P(h,z) - \frac{P(h,z)}{z\bar{y}} \left[\rho\theta \ln \frac{h}{\underline{h}} + \rho\gamma + \chi - P(h,z)\right],$$

where $P(h,z)$ is defined by (3). Denote $t = t(h) = \sqrt{1 - \frac{4\delta h}{z\bar{y}}} \in (0,1)$. Differentiating F with respect to h,

$$\frac{\partial F(h,z,\rho)}{\partial h} = \frac{\theta}{h} - \frac{\partial P}{\partial h} - \frac{P}{z\bar{y}}\left(\frac{\rho\theta}{h} - \frac{\partial P}{\partial h}\right) - \frac{1}{z\bar{y}}\frac{\partial P}{\partial h}\left[\theta\rho \ln \frac{h}{\underline{h}} + \rho\gamma + \chi - P\right].$$

Using $P/(z\bar{y}) = (1-t)/2$ and $\partial P/\partial h = \delta/t$,

$$\frac{\partial F(h,z,\rho)}{\partial h} = \frac{\theta}{h}\left(1 - \frac{\rho(1-t)}{2}\right) - \frac{1}{z\bar{y}}\frac{\delta}{t}\left(\theta\rho \ln \frac{h}{\underline{h}} + \rho\gamma + \chi\right) - \delta. \tag{8}$$

This expression is strictly decreasing in h for a given t, and is strictly increasing in t, where t is strictly decreasing in h. Thus $\partial^2 F(h,z,\rho)/\partial h^2 < 0$ for all $h \in (\underline{h}, \bar{h}(z))$. □

Proof of Theorem 1: Suppose the individual rents for some ρ. We first consider the housing choice conditional on renting.

We next show that $h^u(z,\rho)$ is strictly decreasing in ρ. The unconstrained housing choice $h^u(z,\rho)$ is defined as $\arg\max_{h \leqslant \bar{h}(z)} F(h,z,\rho)$, where F is defined in Lemma 6. Given that the solution is interior, the first-order condition is $F_h(h^u,z,\rho) = 0$. Hence $\partial h^u/\partial\rho = -F_{h\rho}(h^u,z,\rho)/F_{hh}(h^u,z,\rho)$. Differentiating F_h in (8) with respect to ρ, we have

$$F_{h\rho} = -\frac{\theta}{2h}\left[1 - \sqrt{1 - \frac{4\delta h}{z\bar{y}}}\right] - \frac{\delta}{z\bar{y}\sqrt{1 - \frac{4\delta h}{z\bar{y}}}}\left(\theta \ln \frac{h}{\underline{h}} + \gamma\right) < 0.$$

Since $F_{hh} < 0$ by Lemma 6, we have $\partial h^u/\partial \rho < 0$.

We next show that if (2) is violated at $h^u(z,\rho)$, then the optimal choice conditional on renting is $h_{max}(z,\rho)$. If $h_{min}(z,\rho) > \underline{h}$, then, since $h_{min}(z,\rho)$ is the left root of (4),

$$\frac{\rho\theta}{h_{min}} - \frac{\partial P(h_{min},z)}{\partial h} \geqslant 0.$$

Using (8) and (4),

$$F_h(h_{min},z,\rho) = \frac{(1-\rho)\theta}{h_{min}} + \left(1 - \frac{P(h_{min},z)}{z\bar{y}}\right)\left[\frac{\rho\theta}{h_{min}} - \frac{\partial P(h_{min},z)}{\partial h}\right] > 0.$$

Thus, $h^u(z,\rho) > h_{min}(z,\rho)$. If $h_{min}(z,\rho) \leqslant \underline{h}$, then $h^u(z,\rho) > \underline{h}$ whenever the individual rents. Indeed, if $h^u(z,\rho) \leqslant \underline{h}$, strict concavity implies $F(h,z,\rho) < F(\underline{h},z,\rho) < \theta \ln \underline{h}$ for every $h > \underline{h}$, so the individual does not rent. Therefore, if $h^u(z,\rho)$ violates (2), it must satisfy $h^u(z,\rho) > h_{max}(z,\rho)$, and the optimal choice conditional on renting is $h_{max}(z,\rho)$.

We now show that when $h^*(z,\rho) = h_{max}(z,\rho)$, it is strictly increasing in ρ. Since $h^*(z,\rho) < \bar{h}(z)$ by Lemma 2, we have $h_{max}(z,\rho) < \bar{h}(z)$, and thus $h^*(z,\rho) = h_{max}(z,\rho)$ is strictly increasing in ρ by Proposition 2.

Since $h_{max}(z,\rho)$ is increasing and $h^u(z,\rho)$ is strictly decreasing in ρ, once $h^u(z,\rho)$ is available, it remains available. Thus, conditional on renting, the individual chooses $h_{max}(z,\rho)$ for $\rho < \rho^u(z)$ and $h^u(z,\rho)$ for $\rho \geqslant \rho^u(z)$.

We next analyze the individual's utility conditional on renting. When (2) does not bind, the equilibrium price is pinned down by (3) and is independent of ρ. Thus, differentiating (7) with respect to ρ and using the Envelope theorem for the optimal choice $h^r(z,\rho)$, we have

$$\frac{\partial V^r(z,\rho)}{\partial \rho} = -\frac{P^r(z)}{z\bar{y}}\left(\theta \ln \frac{h^r(z,\rho)}{\underline{h}} + \gamma\right) < 0.$$

When $h^r(z,\rho) = h_{max}(z,\rho)$, (4) holds with equality, and hence

$$F(h_{max}(z,\rho),z,\rho) = \theta \ln h_{max}(z,\rho) - P(h_{max}(z,\rho),z).$$

Therefore,

$$\frac{dF(h_{max}(z,\rho),z,\rho)}{d\rho} = \left[\frac{\theta}{h_{max}(z,\rho)} - \frac{\partial P(h_{max}(z,\rho),z)}{\partial h}\right]\frac{\partial h_{max}(z,\rho)}{\partial \rho}.$$

Notice that

$$f(h) \equiv \frac{\theta}{h} - \frac{\partial P(h,z)}{\partial h} = \frac{\theta}{h} - \frac{\delta}{\sqrt{1 - \frac{4\delta h}{z\bar{y}}}}$$

is strictly decreasing in h. Since $h_{max}(z,\rho)$ is strictly increasing in ρ, the derivative of $F(h_{max}(z,\rho),z,\rho)$ can change sign at most once, and only from positive to negative.

If $\rho^u(z) \in (0,1)$, then $h^u(z,\rho^u) = h_{max}(z,\rho^u)$. The first-order condition for h^u, together with (4), gives

$$\frac{\theta}{h}\left(1-\rho\frac{P}{z\bar{y}}\right)-\frac{\partial P}{\partial h}\left(1-\frac{P}{z\bar{y}}\right)=0.$$

Since $\rho \in (0,1)$ and $P/(z\bar{y}) \in (0,1)$, it follows that $f(h) < 0$ at $h = h^u = h_{max}$. Hence $dF(h_{max}(z,\rho),z,\rho)/d\rho < 0$ at $\rho^u(z)$. If $\rho^u(z) = 1$, the same conclusion holds as ρ approaches 1: at the right root of (4), the slope of its left-hand side is smaller than $\partial P/\partial h$.

Together with the fact that $V^r(z,\rho)$ is strictly decreasing when $h^r(z,\rho) = h^u(z,\rho)$, this implies that $V^r(z,\rho)$ is either strictly decreasing or first strictly increasing and then strictly decreasing.

Since $V^{out}(z)$ is independent of ρ, the individual rents over an interval. Denote the thresholds at which the individual switches into and out of renting by $\rho^{in}(z)$ and $\rho^{out}(z)$, respectively. Outside this interval, $h^*(z,\rho) = \underline{h}$ and $V(z,\rho) = V^{out}(z)$. Since $\hat{\mathcal{H}}(z,\rho) = \emptyset$ for $\rho < \hat{\rho}(z)$, we have $\hat{\rho}(z) \leqslant \rho^{in}(z)$.

If $\rho^{in}(z) < \rho^u(z)$, then $\rho^*(z) < \rho^u(z)$. If $\rho^{out}(z) < \rho^u(z)$, this follows because $\rho^*(z) \leqslant \rho^{out}(z)$. Otherwise, it follows because $V^r(z,\rho)$ is decreasing at $\rho^u(z)$, or as ρ approaches 1 if $\rho^u(z) = 1$. If $\rho^{in}(z) \geqslant \rho^u(z)$, then the individual always chooses $h^u(z,\rho)$ when they rent, so $V^r(z,\rho)$ is strictly decreasing and $\rho^*(z) = \rho^{in}(z)$. The stated results follow. □

Proof of Theorem 2: Consider all z such that $\Delta(z,\rho) \geqslant 0$ for some ρ, and define $\underline{z}^{in} = \inf\{z : \Delta(z,\rho) \geqslant 0 \text{ for some } \rho\}$. For those individuals, consider the thresholds $\rho^{in}(z)$ and $\rho^{out}(z)$ defined in Theorem 1.[28] By Lemma 5, $\rho^{in}(z)$ is strictly decreasing whenever $\rho^{in}(z) > 0$, and $\rho^{out}(z)$ is strictly increasing whenever $\rho^{out}(z) < 1$. As $z \downarrow \underline{z}^{in}$, these two thresholds have limits. By continuity and Lemma 5, the limits must be equal; otherwise an individual with productivity below $\underline{z}^{in}$ would rent for a value of ρ between them. Denote their common value by $\bar{\rho}$. If $\bar{\rho} \in (0,1)$, then $\rho^{in}(\underline{z}^{in}) = \rho^{out}(\underline{z}^{in}) = \rho^*(\underline{z}^{in}) = \bar{\rho}$, so that $\Delta(\underline{z}^{in},\bar{\rho}) = 0$ and $\Delta(\underline{z}^{in},\rho) < 0$ for all $\rho \neq \bar{\rho}$. Finally, set $z^{in}(\rho) = \infty$ if no individual rents at ρ. Otherwise, for $\rho < \bar{\rho}$, define $z^{in}(\rho) = (\rho^{in})^{-1}(\rho)$, and for $\rho > \bar{\rho}$, define $z^{in}(\rho) = (\rho^{out})^{-1}(\rho)$. If $\bar{\rho} \in (0,1)$, set $z^{in}(\bar{\rho}) = \underline{z}^{in}$. Thus, $z^{in}(\rho)$ is strictly decreasing for $\rho < \bar{\rho}$ and strictly increasing for $\rho > \bar{\rho}$ over the range in which it is finite. If $\chi = \gamma = 0$, Proposition 5 implies that all individuals for whom $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$ rent. Hence $z^{in}(\rho) = \hat{z}(\rho)$ and $\bar{\rho} = 1$. □

[28] Following the mathematical convention, we assume that if $\hat{\mathcal{H}}(z,\rho) = \emptyset$, then $V^r(z,\rho) = -\infty$ and thus $\Delta(z,\rho) < 0$.

Proof of Lemma 4: Consider

$$D(h) = 1 - \left(\frac{h}{\underline{h}}\right)^{\frac{1-\alpha}{\alpha}\rho} e^{\frac{-\rho\gamma-\chi}{\alpha}} - \frac{4\delta h}{z\bar{y}}.$$

Notice that $D(h) \to -\infty$ as $h \to 0$ or $h \to \infty$. Moreover,

$$D'(h) = \frac{1-\alpha}{\alpha}\rho\, e^{\frac{-\rho\gamma-\chi}{\alpha}} \left(\frac{h}{\underline{h}}\right)^{\frac{1-\alpha}{\alpha}\rho} \frac{1}{h} - \frac{4\delta}{z\bar{y}},$$

$$D''(h) = -\frac{1-\alpha}{\alpha}\rho \left(\frac{1-\alpha}{\alpha}\rho + 1\right) e^{\frac{-\rho\gamma-\chi}{\alpha}} \left(\frac{h}{\underline{h}}\right)^{\frac{1-\alpha}{\alpha}\rho} \frac{1}{h^2} < 0,$$

and thus $D(h)$ is strictly concave in h. Therefore D is single-peaked. If $D(h) < 0$ for all h (which happens, i.e., if z is low enough), then no houses can be priced and thus $\mathcal{H}(z,\rho) = \emptyset$. If $D(h) = 0$ has one root, then $\mathcal{H}(z,\rho)$ is a singleton. If it has two roots, $h_1 = h_{\min}(z,\rho)$ and $h_2 = h_{\max}(z,\rho)$, then $\mathcal{H}(z,\rho) = [h_{\min}(z,\rho), h_{\max}(z,\rho)]$. □

We now prove the analog of Proposition 1.

Proposition 6 *If $\mathcal{H}(z,\rho) \neq \emptyset$ then $\mathcal{H}(z,\rho)$ is strictly increasing in z: $h_{\min}(z,\rho)$ is strictly decreasing in z and $h_{\max}(z,\rho)$ is strictly increasing in z.*

Proof: Let $h(z)$ be a root, so $D(h(z), z) = 0$. By implicit differentiation,

$$\frac{dh}{dz} = -\frac{\partial D/\partial z}{\partial D/\partial h}.$$

We have

$$\frac{\partial D}{\partial z} = -\frac{\partial}{\partial z}\left(\frac{4\delta h}{z\bar{y}}\right) = \frac{4\delta h}{z^2\bar{y}} > 0.$$

Since D is strictly concave in h, $\partial D/\partial h > 0$ at $h_{\min}(z,\rho)$ and $\partial D/\partial h < 0$ at $h_{\max}(z,\rho)$. Thus, $dh_{\min}(z,\rho)/dz < 0$ and $dh_{\max}(z,\rho)/dz > 0$ whenever $D(h,z,\rho) = 0$ has two roots.

If $\mathcal{H}(z,\rho)$ is a singleton, let $h = h_{\min}(z,\rho) = h_{\max}(z,\rho)$. For any $z' > z$, $D(h,z',\rho) > D(h,z,\rho) = 0$. Since $D(h,z',\rho)$ is strictly concave in h and approaches $-\infty$ as $h \to 0$ or $h \to \infty$, it has two roots, one below h and one above h. Hence $h_{\min}(z',\rho) < h < h_{\max}(z',\rho)$. □

As in the main text, define $\hat{\mathcal{H}}(z,\rho) = \mathcal{H}(z,\rho) \cap (\underline{h}, \infty)$. We now prove the generalization of Proposition 2.

Proposition 7 *If $\hat{\mathcal{H}}(z,\rho) \neq \emptyset$, then $\hat{\mathcal{H}}(z,\rho)$ is strictly increasing in ρ.*

Proof: The proof is analogous to the proof of Proposition 6. We first show that $h_{max}(z,\rho)$ is strictly increasing in ρ. We have $D(h_{max}(\rho),\rho)=0$. Then

$$\begin{aligned}
\frac{dh_{max}}{d\rho} &= -\frac{\partial D/\partial\rho}{\partial D/\partial h},\\
\partial D/\partial\rho &= -e^{\frac{-\rho\gamma-\chi}{\alpha}}\left(\frac{1-\alpha}{\alpha}\ln\frac{h}{\underline{h}}-\frac{\gamma}{\alpha}\right)\left(\frac{h}{\underline{h}}\right)^{\frac{1-\alpha}{\alpha}\rho},\\
\partial D/\partial h &= \frac{1-\alpha}{\alpha}\rho\, e^{\frac{-\rho\gamma-\chi}{\alpha}}\left(\frac{h}{\underline{h}}\right)^{\frac{1-\alpha}{\alpha}\rho}\frac{1}{h}-\frac{4\delta}{z\bar{y}}.
\end{aligned}$$

Since $h_{max}>\underline{h}$, we have $\partial D(h_{max},\rho)/\partial\rho>0$. Moreover, at the right crossing the slope of D is negative, i.e., $\partial D(h_{max},\rho)/\partial h<0$. Therefore $dh_{max}/d\rho>0$. By the analogous argument, since $\partial D(h_{min},\rho)/\partial h>0$, we have $dh_{min}/d\rho<0$ so long as $h_{min}>\underline{h}$. If $h_{min}\leqslant\underline{h}$, then the lower bound of $\hat{\mathcal{H}}$ is $\underline{h}$, which does not vary with ρ.

Finally, if $\mathcal{H}(z,\rho)$ is a singleton $h>\underline{h}$, then for any $\rho'>\rho$, $D(h,z,\rho')>D(h,z,\rho)=0$. Since $D(h,z,\rho')$ is strictly concave in h and approaches $-\infty$ as $h\to 0$ or $h\to\infty$, it has two roots, one below h and one above h. Thus, the result also holds when $\mathcal{H}(z,\rho)$ is a singleton. □

Proof of Theorem 3: Conditional on renting, write the objective as $\widetilde{F}(\nu,z,\rho)=\ln z+G(\nu,C)$, where $C=\rho\left[(1-\alpha)\ln(z\nu/\underline{h})+\gamma\right]+\chi$. Because renting is strictly preferred, $\rho^*(z)\in(0,1)$, and $z\nu^{\rho^*}(z)>\underline{h}$, we can locally reparameterize the preferred-policy problem from (ν,ρ) to (ν,C). Apart from the additive term $\ln z$, the problem expressed in terms of (ν,C) is independent of z. Hence, its unique optimal pair, denoted by (ν^{ρ^*},C^*), is unchanged. Since the individual strictly prefers renting, the preferred pair is unique, and $\rho^*(\tilde{z})\in(0,1)$ for every $\tilde{z}\in[z,z']$, the same argument can be applied successively as productivity increases from z to z'. Hence (ν^{ρ^*},C^*) is unchanged over this range.

Thus,

$$\rho^*(z)=\frac{C^*-\chi}{(1-\alpha)\ln\left(\dfrac{z\nu^{\rho^*}}{\underline{h}}\right)+\gamma}.$$

The denominator is strictly increasing in z, while $C^*-\chi>0$. Hence, a marginal increase in z strictly lowers $\rho^*(z)$. □

Proposition 8 *Consider $z'>z$ such that $\underline{\nu}(z')<\underline{\nu}(z)$. If $\mathcal{H}(z,\rho)\neq\varnothing$, then $\mathcal{H}(z',\rho)\neq\varnothing$ and $\nu_{min}(z',\rho)<\nu_{min}(z,\rho)$, $\nu_{max}(z',\rho)>\nu_{max}(z,\rho)$. Consequently, $h_{max}(z',\rho)>h_{max}(z,\rho)$. In contrast, $h_{min}(z',\rho)$ need not be smaller than $h_{min}(z,\rho)$. If, in addition, $\underline{h}(z')\leqslant\underline{h}(z)$, then $h_{min}(z',\rho)<h_{min}(z,\rho)$.*

Proof: In terms of ν, the availability condition is

$$\widetilde{D}(\nu, z, \rho) = 1 - e^{-(\rho\gamma+\chi)/\alpha}\left(\frac{\underline{\nu}(z)}{\nu}\right)^{\frac{1-\alpha}{\alpha}\rho} - \frac{4\delta\nu}{\bar{y}}.$$

Hence, $\widetilde{D}(\nu, z', \rho) > \widetilde{D}(\nu, z, \rho)$ for every ν. Since $\widetilde{D}$ is strictly concave in ν and converges to $-\infty$ as ν approaches either zero or infinity, its left root moves to the left and its right root moves to the right. This proves the results for $\nu_{\min}$ and $\nu_{\max}$.

Moreover, $h_{\max}(z', \rho) = z'\nu_{\max}(z', \rho) > z'\nu_{\max}(z, \rho) > z\nu_{\max}(z, \rho) = h_{\max}(z, \rho)$. By contrast, $h_{\min} = z\nu_{\min}$, so the increase in z and the decrease in $\nu_{\min}$ have opposite effects.

Finally, let $h = h_{\min}(z, \rho)$. Since $D(h, z, \rho) = 0$,

$$D(h, z', \rho) = e^{-(\rho\gamma+\chi)/\alpha}\left[\left(\frac{\underline{h}(z)}{h}\right)^{\frac{1-\alpha}{\alpha}\rho} - \left(\frac{\underline{h}(z')}{h}\right)^{\frac{1-\alpha}{\alpha}\rho}\right] + \frac{4\delta h}{\bar{y}}\left(\frac{1}{z} - \frac{1}{z'}\right).$$

If $\underline{h}(z') \leqslant \underline{h}(z)$, this expression is strictly positive. Therefore h lies strictly above the left root of $D(\cdot, z', \rho)$, which implies $h_{\min}(z', \rho) < h_{\min}(z, \rho)$. □

B Additional Tables and Figures

B.1 State-Level EPI

Table B1: EPI by State

State	EPI	State	EPI	State	EPI
Alabama	0.504	Louisiana	0.438	Ohio	0.511
Alaska*	0.809	Maine	0.932	Oklahoma*	0.715
Arizona	0.525	Maryland	0.017	Oregon	0.426
Arkansas	0.825	Massachusetts	0.451	Pennsylvania	0.510
California*	0.653	Michigan*	0.446	Rhode Island	0.607
Colorado	0.534	Minnesota	0.395	South Carolina	0.174
Connecticut	0.712	Mississippi*	*NA*	South Dakota*	*NA*
Delaware	0.281	Missouri	0.597	Tennessee*	0.876
Florida	0.509	Montana	0.648	Texas	0.447
Georgia	0.273	Nebraska	0.625	Utah	0.463
Hawaii*	0.460	Nevada*	0.235	Vermont*	0.968
Idaho*	*NA*	New Hampshire*	*NA*	Virginia	0.292
Illinois	0.280	New Jersey	0.025	Washington	0.520
Indiana*	0.641	New Mexico	0.533	West Virginia*	*NA*
Iowa	0.540	New York	0.138	Wisconsin	0.585
Kansas	0.834	North Carolina	0.343	Wyoming	0.883
Kentucky	0.471	North Dakota*	*NA*		

Note: Missing EPI values for some states are due to lack of coverage in the Eviction Lab data. An asterisk indicates that the state does not satisfy the coverage criterion described in subsection 3.2.

Table B2: Regression of Census Tract Average Filing Rates on EPI

	(1)	(2)	(3)	(4)
EPI	-20.658***	-22.275***		
	(5.050)	(4.404)		
Log Median Rent		0.309	0.862	2.506
		(1.136)	(0.922)	(1.963)
Log Median Renter Household Income		1.160*	0.574	1.610*
		(0.635)	(0.451)	(0.858)
Unemployment Rate		0.030	0.091**	0.068
		(0.070)	(0.043)	(0.074)
Log Median Home Value		-3.242**	-0.931	-1.115
		(1.259)	(0.566)	(1.469)
State Fixed Effect			X	
Year and Demographic Controls		X	X	X
Mean	7.797	7.797	7.797	7.797
Obs	28,048	28,048	28,048	28,048
R^2	0.134	0.339	0.502	0.220

Note: The outcome variable is the average eviction filing rate of the census tract for the previous five years, conditional on availability. Only one observation is used per census tract, the last year it is observed. Tracts with average filing rates above 100 are excluded. The control variables consist of the 5-year tract variables from the ACS, as well as the state EPI. Demographic controls include tract education and age compositions. Column (2) includes the state EPI, while (3) includes state fixed effects. Column (4) includes only the control variables. Regressions are weighted by number of renting households per the census tract. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

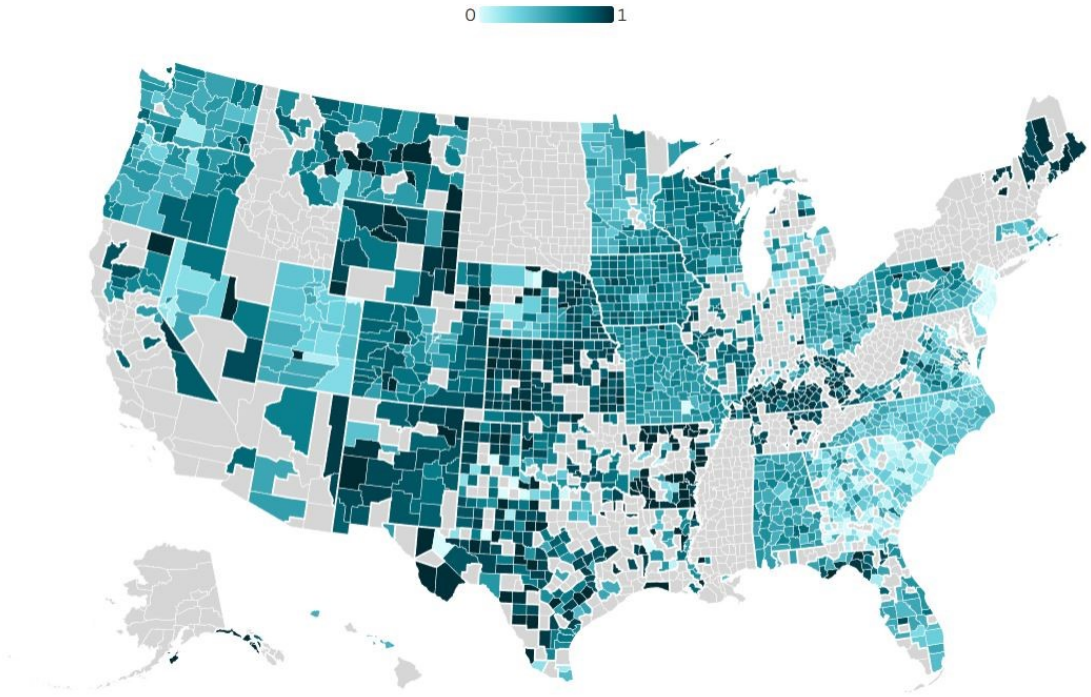
Table B3: Regressions of HH Formation on EPI by College Degree Using ACS

	Living with a Parent	Being a Household Head
	(1)	(2)
EPI	-0.101***	0.120***
	(0.023)	(0.032)
Income Quartile 2	-0.072***	0.076***
	(0.006)	(0.008)
Income Quartile 3	-0.108***	0.129***
	(0.012)	(0.018)
Income Quartile 4	-0.200***	0.241***
	(0.010)	(0.015)
EPI × Income Quartile 2	-0.025*	0.053***
	(0.014)	(0.017)
EPI × Income Quartile 3	-0.074***	0.100***
	(0.024)	(0.035)
EPI × Income Quartile 4	-0.031	0.048
	(0.020)	(0.030)
College Degree	-0.011	0.063***
	(0.021)	(0.020)
EPI × College Degree	-0.030	-0.003
	(0.048)	(0.044)
Log Average State Home Value	0.004	-0.036
	(0.055)	(0.059)
Age	-0.014***	0.015***
	(0.001)	(0.001)
Year and Demographic Controls	X	X
Mean	0.319	0.563
Obs	2,949,181	2,949,181
R^2	0.129	0.193

Note: The outcome variable in column (1) is a binary variable that equals 1 if the individual lives in a household in which their parent or a parent-in-law is the head of the household, and 0 otherwise. The outcome variable in column (2) is a binary variable that equals 1 if the individual is a household head or a spouse/unmarried partner/housemate of a household head, and 0 otherwise. Regressions include year, race, gender, and marital status controls. Regressions include only individuals not in group quarters nor currently in school, of ages 21 to 35. The sample consists of renters plus residents of owner households who are not the head, spouse, or unmarried partner. Income is winsorized at zero before adding one and taking log. The sample includes 35 states with an average renter-household coverage of at least 10 percent. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

B.2 County-Level EPI

Figure B1: Eviction Policy Index by U.S. County



Note: Missing data for some counties are due to the lack of coverage in the Eviction Lab data.

Table B4: Regression of Census Tract Average Threatened Rates on County EPI

	(1)	(2)	(3)	(4)
County EPI	-10.562***	-10.998***		
	(1.551)	(0.962)		
Log Median Rent		0.052	-0.201	2.062***
		(0.572)	(0.302)	(0.655)
Log Median Renter Household Income		0.602	-0.170	0.581
		(0.376)	(0.265)	(0.397)
Unemployment Rate		0.057*	0.078***	0.085**
		(0.032)	(0.017)	(0.034)
Log Median Home Value		-2.168***	-0.916***	-1.069*
		(0.551)	(0.327)	(0.579)
County Fixed Effect			X	
Year and Demographic Controls		X	X	X
Mean	6.043	6.043	6.054	6.043
Obs	29,239	29,239	29,107	29,239
R^2	0.128	0.398	0.638	0.299

Note: The outcome variable is the average eviction threatened rate of the census tract for the previous five years, conditional on availability. Only one observation is used per census tract, the last year it is observed. Tracts with average filing rates above 100 are excluded. The control variables consist of the 5-year tract variables from the ACS, as well as the county EPI. Column (2) includes the county EPI, while (3) includes county fixed effects. Column (4) includes only the control variables. Regressions are weighted by number of renting households per the census tract. Standard errors are clustered at the county level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B5: Regression of Living with a Parent on County EPI Using ACS

	Ages 18-35 (1)	Ages 18-35 (2)	Ages 18-35 (3)	Ages 40-60 (4)
County EPI	0.006	-0.126***	-0.132***	-0.019*
	(0.046)	(0.027)	(0.022)	(0.011)
Log Income		-0.019***		-0.009***
		(0.001)		(0.000)
Income Quartile 2			-0.100***	
			(0.007)	
Income Quartile 3			-0.143***	
			(0.011)	
Income Quartile 4			-0.230***	
			(0.023)	
County EPI × Income Quartile 2			0.013	
			(0.015)	
County EPI × Income Quartile 3			-0.047**	
			(0.022)	
County EPI × Income Quartile 4			-0.020	
			(0.048)	
Log Average County Home Value		-0.167***	-0.153***	-0.069***
		(0.026)	(0.024)	(0.006)
Age		-0.020***	-0.018***	-0.004***
		(0.000)	(0.000)	(0.000)
Year and Demographic Controls		X	X	X
Mean	0.331	0.331	0.331	0.132
Obs	1,676,848	1,676,848	1,676,848	1,241,656
R^2	0.000	0.149	0.161	0.072

Note: The outcome variable is a binary variable that equals 1 if the individual lives in a household in which their parent or a parent-in-law is the head of the household, and 0 otherwise. Columns (2) through (4) include year, race, gender, and marital status controls. Regressions include only individuals not in group quarters nor currently in school, of ages 18 to 35 for columns (1) through (3), and ages 40 to 60 for column (4). The sample consists of renters plus residents of owner households who are not the head, spouse, or unmarried partner. Income is winsorized at zero before adding one and taking log. Regressions are weighted by ACS person weights. Standard errors are clustered at the county level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B6: Regression of Being a Household Head on County EPI Using ACS

	Ages 18-35 (1)	Ages 18-35 (2)	Ages 18-35 (3)	Ages 40-60 (4)
County EPI	0.027	0.147***	0.144***	0.044**
	(0.054)	(0.031)	(0.022)	(0.021)
Log Income		0.024***		0.021***
		(0.001)		(0.000)
Income Quartile 2			0.094***	
			(0.008)	
Income Quartile 3			0.164***	
			(0.013)	
Income Quartile 4			0.298***	
			(0.027)	
County EPI × Income Quartile 2			0.031*	
			(0.017)	
County EPI × Income Quartile 3			0.078***	
			(0.026)	
County EPI × Income Quartile 4			0.010	
			(0.056)	
Log Average County Home Value		0.164***	0.143***	0.117***
		(0.028)	(0.024)	(0.016)
Age		0.022***	0.019***	-0.002***
		(0.000)	(0.000)	(0.000)
Year and Demographic Controls		X	X	X
Mean	0.543	0.543	0.543	0.702
Obs	1,676,848	1,676,848	1,676,848	1,241,656
R^2	0.000	0.210	0.229	0.105

Note: The outcome variable is a binary variable that equals 1 if the individual is a household head or a spouse/unmarried partner/housemate of a household head, and 0 otherwise. Columns (2) through (4) include year, race, gender, and marital status controls. Regressions include only individuals not in group quarters nor currently in school, of ages 18 to 35 for columns (1) through (3), and ages 40 to 60 for column (4). The sample consists of renters plus residents of owner households who are not the head, spouse, or unmarried partner. Income is winsorized at zero before adding one and taking log. Regressions are weighted by ACS person weights. Standard errors are clustered at the county level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B7: Regressions of HH Formation on County EPI by College Degree Using ACS

	Living with a Parent	Being a Household Head
	(1)	(2)
County EPI	-0.147***	0.177***
	(0.028)	(0.029)
Income Quartile 2	-0.098***	0.094***
	(0.008)	(0.008)
Income Quartile 3	-0.128***	0.148***
	(0.010)	(0.011)
Income Quartile 4	-0.203***	0.248***
	(0.014)	(0.015)
County EPI × Income Quartile 2	0.017	0.022
	(0.016)	(0.017)
County EPI × Income Quartile 3	-0.049**	0.076***
	(0.020)	(0.023)
County EPI × Income Quartile 4	-0.037	0.044
	(0.028)	(0.032)
College Degree	-0.044*	0.100***
	(0.024)	(0.026)
County EPI × College Degree	0.033	-0.069
	(0.051)	(0.054)
Log Average County Home Value	-0.152***	0.139***
	(0.024)	(0.023)
Age	-0.014***	0.015***
	(0.001)	(0.001)
Year and Demographic Controls	X	X
Mean	0.301	0.578
Obs	1,526,082	1,526,082
R^2	0.135	0.197

Note: The outcome variable in column (1) is a binary variable that equals 1 if the individual lives in a household in which their parent or a parent-in-law is the head of the household, and 0 otherwise. The outcome variable in column (2) is a binary variable that equals 1 if the individual is a household head or a spouse/unmarried partner/housemate of a household head, and 0 otherwise. Regressions include year, race, gender, and marital status controls. Regressions include only individuals not in group quarters nor currently in school, of ages 21 to 35. The sample consists of renters plus residents of owner households who are not the head, spouse, or unmarried partner. Income is winsorized at zero before adding one and taking log. Regressions are weighted by ACS person weights. Standard errors are clustered at the county level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.